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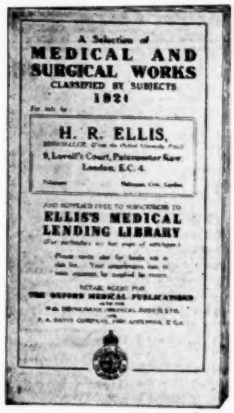

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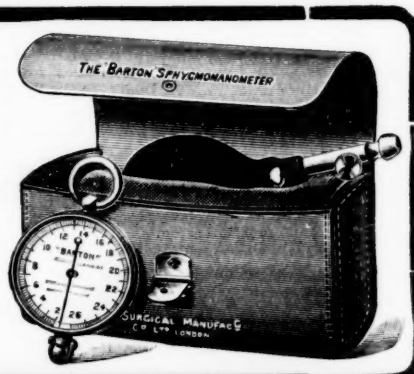

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An Address
ON
THE USE AND MIS-USE OF THE CURETTE.

Delivered to Graduates at the Manchester Royal Infirmary on Nov. 9th, 1920,

BY W. E. FOTHERGILL, M.A., B.Sc., M.D. EDIN.,
PROFESSOR OF OBSTETRICS AND GYNÆCOLOGY IN THE UNIVERSITY OF MANCHESTER.

THERE has recently been a strong reaction against the indiscriminate use of the curette; but from the first some authorities strictly defined the indications for scraping away the endometrium. Thus Marion Sims appears to have introduced the sharp curette about the year 1865, and soon afterwards T. A. Emmet wrote: "As regards the instrument of Dr. Sims, I honestly believe that the ingenuity of man has never devised one capable of doing more injury." Ever since that time the curette has had its detractors; but in spite of them all it has gained a popularity probably unrivalled by that of any other surgical implement. It may interest and possibly amuse you to hear some recent expressions of opinion on this subject. J. O. Polak says: "It seems almost impossible to educate the profession to the acceptance of the fact that the curette has but two well-defined indications: first, to remove the products of conception before the eighth week; and, second, to make the diagnosis in inter-menstrual uterine bleeding at or after the menopause."

A. Heineberg[1] thinks that "despite all that has been written and taught in the last few years about the futility or harmfulness of uterine curettage, there is probably no operation which is still so frequently abused." This writer describes the now well-known changes which occur during the menstrual cycle. Only 2 or 3 mm. in thickness during the resting phase, the endometrium grows to 6 or 7 mm. thick during the pre-menstrual phase. There is loss of superficial epithelium and destruction of the stroma by extravasation of blood during the menstrual phase, and the process of repair which begins before the bleeding ceases reproduces a new endometrium 2 or 3 mm. thick by the beginning of the next resting phase. These changes, the writer reiterates, account for the varieties of so-called endometritis described by our predecessors; and he emphasises the futility of scraping away the endometrium because it varies from phase to phase of the menstrual cycle. Heineberg next expresses with satisfaction his belief that curetting is being done less and less in incomplete abortion and in puerperal infection. He goes on to condemn the operation in dysmenorrhœa because it is only successful in odd cases, and then it is the preliminary divulsion of the cervix that does good, not the curetting. In sterility he says that many uteri are infantile and unfit for pregnancy, and that lack of offspring can be demonstrated to be the fault of the male in from 30 to 40 per cent. of cases carefully studied. He mentions 100 cases re-operated by Polak, amongst whom were 43 who had been curetted for sterility, although they were the victims of old pelvic infection. Of the 43 women, 39 had been curetted without first having their husbands examined. Howard A. Kelly's figures are quoted to show that less than 15 per cent. of curettings for sterility are followed by pregnancy. The work of A. H. Curtis is next cited to prove that the endometrium is generally germ-free, and this is regarded as an objection to curetting because during the operation the uterine cavity may be infected. This writer next condemns the use of the curette for leucorrhœa, and finally he says that, "the statistics of T. S. Cullen, C. C. Norris, and R. M. Rawls, combined with the work of Curtis, present a strong condemnation of that pernicious and thoughtless practice which includes curettage as a routine measure in most (vaginal) operations on the pelvic viscera."

[1] Heineberg: Therap. Gaz., August, 1920, p. 538.

Indiscriminate Curettage.

W. A. Lincoln[2] writes that the most accepted of all rules of conduct is "When in doubt, curette." He, like Heineberg, mentions that the old varieties of so-called endometritis are nothing but normal phases of the menstrual cycle, and that, naturally, one or other of them was found whenever a scraping was examined. "A nice symptomatology was built up around these, all the way from amenorrhœa, dysmenorrhœa, metrorrhagia, menorrhagia, or any other kind of discharge to general symptoms of lassitude, headache, backache, or any other ache." "In case some women might be left out it was stated that endometritis might be present without any symptoms whatever. Given a curette and a woman, the old-time gynæcologist would always find endometritis." Lincoln quotes Cullen to the effect that endometritis is a very rare disease and H. B. Whitehead to show that hæmorrhage is not a symptom of it. He cites Busse as to the result of curetting for hæmorrhage in 500 cases with benefit in only 10 per cent. of them. Passing on to the dangers of curetting, he says that in puerperal infection many deaths have been laid to its door, and refers to A. P. Heineck's 160 cases of perforation of the uterine wall, and Schweetzer's[3] 105 German cases with a death-rate of 25 per cent.

To secure personal information Lincoln wrote to a number of his neighbours and received from 24 medical men 43 curetting disasters with 11 deaths, a mortality of 25 per cent. He publishes all these cases in detail. There were 5 cases of severe bleeding with 3 deaths; 8 cases of sepsis with 3 deaths; 27 cases of rupture of the uterus with 4 deaths; and 3 cases during early pregnancy with 1 death. He concludes: "A curettage is a major operation not to be undertaken except under the very best conditions, and with every possible precaution, by a careful and skilful surgeon." J. W. Bovée[4] writes: "It is a notorious fact that the most slovenly and ignorant physician resorts without hesitation to the curette for various diseases of the uterus, real or otherwise." He condemns the routine curettage incident to pelvic plastic surgery, and in so-called endometritis. Incomplete abortion he calls a discarded or discredited indication, the curette being "not only very hazardous but decidedly unnecessary except in case of very dangerous hæmorrhage." Subinvolution as an indication is also discarded. A chapter of accidents follows, including "resection of 70 inches of intestine after perforation of the uterus with the curette," "perforation of the puerperal uterus," and "17 centimetres of gut drawn out of the uterine cavity." This writer also quotes the work of Curtis to show that the uterine cavity is generally sterile, the idea being that it is a very risky performance to pass an instrument through the cervical canal, which is sometimes infected, into the uterine cavity, which is generally germ-free.

Proved Uses of the Curette.

Between them the authorities just quoted condemn most of the usual indications for the use of the curette, and if they are all right it follows that curetting is generally wrong. We are all ready to admit that there is still much futile curetting; but the pendulum has swung too far against a useful instrument, and it is worth while to consider the moot points seriatim in the cold light of common-sense and experience.

Acute septic endometritis.—Take first the question as to the use of a large curette for emptying and cleaning the uterus infected either post-partum or post-abortum. If this is done before the pathogenic organisms have entered the blood stream the result is generally excellent. The cleansing of the uterine cavity should, of course, be completed with fairly dry swabs, and not by intra-uterine douching, which sometimes forces

[2] Lincoln: Annals of Surgery, December, 1918, p. 638.
[3] Monats. f. Geburts. u. Gyn., 1915, vol. xlii., p. 148.
[4] Bovée: Surg., Gyn., and Obstet., June, 1920, p. 618.

septic material and irritating antiseptic solutions up through the tubes into the peritoneal cavity with disastrous results. The dry cleaning should not be repeated, and no subsequent intra-uterine or vaginal douche is desirable. Once emptied and swabbed, not swilled, with an efficient concentrated antiseptic, the uterus is best left alone. Now if the patient already has septicæmia before the curetting is done she may, of course, subsequently die of septicæmia; but there is no reason for joining Lincoln in laying her death at the door of the curette, which in septicæmia does no harm if it does no good.

Incomplete abortion.—The discovery of retained products of conception and their removal from the uterus remain, in spite of all that has been said to the contrary, sound and common uses for the curette. And these include subinvolution, in which the removal of an unduly persistent layer of decidual tissue is often an essential step in the treatment.

Hæmorrhage.—It is clear that removing the endometrium will not cure so-called functional uterine bleeding; in other words, bleeding which is not due to any local lesion, but is menorrhagia due to excess of ovarian secretion, anæmia, or some other general cause. But the dilator and the curette are essential for the discovery of mucous and small fibroid polypi, of malignant disease within the cervical canal and uterine cavity, and of the results of infection superadded to post-menopause changes known as "senile hæmorrhagic endometritis." Except in malignant cases, they provide the treatment as well as the diagnosis. The rule should be, curette in metrorrhagia but not in menorrhagia. Neither the cause of menstruation nor the cause of excessive menstruation is local.

Preliminary to plastic vaginal operations.—The use of the curette as a preliminary step in operations for genital prolapse has been utterly condemned. But when the cervix is to be amputated or repaired it must first be dilated in order to gain working room for suturing. Again, it is wise to make sure that all is well within the uterus before so narrowing the vagina as to render access to the uterine cavity very difficult thereafter. Polypi are often found and removed during the preliminary scraping, and early malignant disease of the body of the uterus is discovered from time to time. This has happened in cases of my own, three times within the last few months, and has confirmed me in the habit of curetting before operating for prolapse. The prognosis in cancer of the body is something like ten times as good as in cancer of the cervix; and, in early cases, hysterectomy seldom fails to save the patient. If I had omitted the routine preliminary curetting, these three women would have gone away cured of prolapse only to return in a few months with cancer of the uterus advanced beyond remedy.

Leucorrhœa.—Let us grant at once that it is ridiculous to curette for "the whites"—namely, creamy leucorrhœa or excess of the normal vaginal discharge which does not come from the uterus at all. In slimy leucorrhœa, again, the mucus appears to come mainly from the cervix and scraping does not much help matters.

Sterility.—Let us also grant that it is quite wrong to curette for sterility, without first making sure that there is no definite cause for it either in the patient or her husband. The operation is useless for this purpose in cases of relative sterility (one child or one abortion). It is also necessary to remember that age, pure and simple, is the commonest explanation of sterility and that when a woman aged 40 marries, the odds against her becoming pregnant is about 100 to 1. But when both husband and wife are sound and young, and have been married three or four years without offspring, experience shows that conception quickly follows curetting in a certain percentage of cases. Whether the dilator or the curette is the efficient instrument in these cases remains to be proved.

Dysmenorrhœa.—Here the trouble is that spasmodic and congestive dysmenorrhœa are constantly confused. Sharp, twisting pain dating from puberty and limited to a few hours on the first day of the period is often cured by the birth of the first child and is often relieved by thorough dilatation of the cervix under an anæsthetic. It is useless to dilate a cervix through which a child's head has already passed without curing the pain. On the other hand, neither the dilator nor the curette can remedy the dull aching of distended veins in the pelvis any more than they can relieve the aching of varicose veins in the leg or in the scrotum. Thus the curette is out of court for dull aching pain either during or between the menstrual periods. Such pain is not in the uterus nor is it caused by it. If a patient has both spasmodic and congestive dysmenorrhœa it is worth while to dilate; for the sharp pain of the first day may be relieved though the dull premenstrual and menstrual aching will remain.

Dangers of Curettage.

There is nothing to be gained by exaggerating the risks of dilatation and curetting—namely, infection, splitting the cervix, and perforating the body of the uterus. Infection can be avoided by the usual precautions. If the operator retains in his own hand one of the vulsellæ with which the uterus is drawn down during dilatation, his own muscular sense will estimate the force he is exerting upon the dilator in his other hand. Thus he should avoid the risk of causing serious laceration of the cervix. It is much easier to perforate the uterus with a small dilator than with a large one. Therefore it is wise to push in the smaller dilators only 2½ inches and to refrain from attempting to measure the uterine cavity until the internal os will admit the passage of a large dilator. The length of the cavity once estimated, the operator is not likely to perforate or tear the uterus with the curette. Clean perforation of a healthy uterine wall does no harm, as the uterine muscle closes the hole at once. But if the organ is so atrophied or degenerated that it tears easily it should be removed at once.

Summary and Conclusion.

To sum up, the broad fact remains that the curette is mainly a diagnostic instrument. Apart from mere increase in the duration or quantity of the menstrual flow, and in the presence of any uterine hæmorrhage whose cause is not clear, the rule, "When in doubt, curette," is a sound one.

In women of reproductive age the cause of irregular bleeding is found in the majority of cases to be retained products of conception; and it is remarkable how often these relics are found in women who will not admit that they have missed a single period. Sometimes one or more polypi are found. Occasionally, though the cervix feels normal, the curette finds a place within the cervical canal where epithelioma yields like cheese. And not so very rarely malignant disease is found within the body of the uterus. After the close of reproductive life uterine bleeding absolutely demands dilatation and exploration by curette unless the hæmorrhage has an obvious cause, such as cancer of the cervix, the twisting of the pedicle of an ovarian cyst, or the degeneration of a fibroid. In these post-menopause cases exploration generally reveals the presence of cancer of the body of the uterus; but sometimes there is nothing but the result of a chronic infection whose steps are senile vulvitis, vaginitis, cervicitis, endometritis. In these cases, if the cervical canal becomes occluded after the endometrium has been infected, the result is pyometra, with distension of the uterus by pus and blood-stained purulent vaginal discharge. Now, in cancer of the corpus uteri infection of the ulcerated new growth occurs very late, so that the discharge becomes offensive only when the disease is far advanced. Thus foul discharge means pyometra or late cancer of the body, while a discharge of pure blood through a clean vagina means early cancer of the body. The cases of senile hæmorrhagic endometritis and of pyometra are more numerous than we realise, and they are quite curable by the curette. Thus the operator who removes every enlarged bleeding uterus in an old patient without preliminary exploration will subject to the discomforts and risks of hysterectomy a certain proportion of old ladies who could have been cured by a simpler and safer method.

A Dissertation
UPON
CARBUNCLES.[1]

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Differing Definitions.

SOME authorities regard a carbuncle as an affection of the skin only; in H. N. Barnett's "Students' Handbook of Surgery" it is defined as "an acute phlegmonous inflammation of the skin with multiple openings, induration, sloughing of subjacent tissues and of the skin." Others admit that the subcutaneous tissue is also affected. H. W. Stelwagon[2] writes of it as "an acute, usually egg- to palm-sized, more or less circumscribed flattened phlegmonous inflammation of the skin and subcutaneous tissues terminating in slough." Watson Cheyne and F. F. Burghard[3] define it as "a gangrenous inflammation of the skin and subcutaneous tissues affecting a considerable area." Others do not regard it as a skin affection. Marcus Beck[4] calls it "a spreading inflammation of the subcutaneous areolar tissue implicating the skin and terminating in death of the affected tissues with formation of slough." W. Rose and A. Carless[5] attribute carbuncle to the subcutaneous tissue.

It will be seen that some authors regard carbuncle as an affection of skin only, others as an affection of skin and subcutaneous tissue, whilst others again do not admit that the skin is involved at all. The derivation of the word from *carbo*, a coal, apparently from the fancied resemblance of the surface appearance to that of a living coal, gives no justification for limiting the lesion to the structure of the skin. As a fact the microbic organism to which the affection is due makes no distinction between anatomical divisions, but impartially invades any tissue. Carbuncles begin on the surface of the skin, as seen in pustules, or in the deep layers of the skin, or in the tissue beneath the skin, and even under deep fascia. All carbuncles attempt, and most succeed, in destroying the skin, but this does not constitute them as a skin disease. J. E. Erichsen remarks, "whether carbuncle commences in the skin or in the subcutaneous areolar tissue is not definitely ascertained." But I think the answer to the question is that it may begin in either.

Probable Sequence of Events in Carbuncles.

Opinions also differ as to whether a carbuncle is an inflammatory process. Most of the authors I have quoted, with J. F. Schamberg,[6] J. H. Sequeira,[7] and others, regard it as a phlegmonous or gangrenous (Cheyne) inflammation, terminating in slough. Others are more guarded; thus Malcolm Morris[8] terms it an "infiltration," and Pye-Smith[9] speaks of it as the "inflammation which accompanies sloughing." A. von Winiwarter,[10] however, states that it is primarily a tissue necrosis, and Rose and Carless[11] describe it concisely as "an extensive gangrene of the subcutaneous tissues, due to a local invasion of pyogenic microbes." Inflammation ordinarily leads to suppuration, diffuse or local, but the pathognomonic sign of carbuncle is sloughing or necrosis of tissue. A carbuncle begins in a more or less acute sudden pain; after a varying interval neighbouring tissues become tense and sooner or later the surface of the skin shows signs of inflammation and œdema. Eventually the skin is ulcerated through from below: as soon as this is accomplished the inflammatory symptoms begin to subside, and the redness, heat, and swelling fade away.

I think the sequence of events in carbuncles makes it probable that necrosis of tissue is the first event and that the inflammatory process is secondary, being the natural method of separation of the slough from the living tissues and eliminating it from the body, much as happens in gangrene in other parts. It is of interest to remember that carbuncle is apt to occur in diabetics, who are specially prone to gangrene. And, with slight modification, I shall adopt as my definition of a carbuncle that of Rose and Carless, that it is a gangrene of deep skin or deeper tissues due to a local invasion of pyogenic microbes.

Cause of Sloughing.

A. von Winiwarter suggests that the sloughing is due to early thrombosis of vessels due to microbic invasion. And M. Kaposi[12] writes: "Some believe, though it has never been proved, that thrombosis of vessels is the first event." The suddenness of the pain that sometimes occurs supports this belief, and the theory of primary thrombosis, resulting in necrosis of tissue and consequent inflammatory effusion, seems to me the most probable explanation of the formation of carbuncle.

Pathology of Carbuncles.

Etiology.—The proximate cause is generally, possibly always, the *Staphylococcus pyogenes aureus*. Entry into the body: I believe it is generally held that a carbuncle results from local infection of skin, staphylococci already existing there suddenly taking on activity in debilitated persons. This is no doubt true in many cases, but there are difficulties in believing that it is always so. It is not easily credited that the staphylococcus can, so suddenly as it does, set up a fierce acute carbuncle from a supposed local infection merely because the host is debilitated. Carbuncles sometimes occur in non-debilitated persons, and carbuncles occurring in long series at parts of the body distant from one another can hardly be said each to arise from local infection. Having once invaded the body in a pathogenic form, the organism may remain in some local focus—perhaps the scar of the carbuncle—and set up fresh local lesions. Age: Usually after middle life, though in war conditions they occurred in early age, being quite a scourge in the English and French armies. Sex: Males many more than females. Locality: Mostly on dorsal surfaces of the body or scalp, but they may occur on the face, the worst carbuncle of all being that on the lip. Constitutional conditions: Debilitating conditions, exposure, fatigue, &c., as also diabetes, and (it is said) albuminuria. Diet: Carbuncles have been numerous since 1914 and have been attributed to deficient food. But mere starvation does not lead to carbuncles, and if the cause be deficiency or defect in some dietetic principle, we do not know what it is. It has been suggested that deficiency in fresh vegetables rendered it commoner amongst English and French than in the German army. Periodic frequency: Erichsen remarked 40 years ago that carbuncles are more numerous in some years than others, and they have been more common all over the world since 1914. All microbic affections are liable from time to time to take on virulence and wide distribution to which debilitating conditions and overcrowding contribute. Relapses: Carbuncles often occur in series, sometimes long continued through months or years, and are apt to recur after some months' interval.

Symptoms.

Pain.—The first symptom is pain—in superficial carbuncles mere burning, itching, or irritation, in deeper ones sometimes acute and lancinating like a stab with a knife or the sting of an insect, but there is nothing to confirm the theory that carbuncles commence in a sting. In very deep-seated lesions the pain may be deep and throbbing, perhaps intermitting for hours or

[1] A paper read at a meeting of the Harveian Society on Nov. 18th, 1920.
[2] H. W. Stelwagon: Diseases of Skin, eighth edition, p. 424.
[3] W. Cheyne and F. F. Burghard: Manual of Surgical Treatment, vol. ii., p. 7.
[4] J. E. Erichsen: Surgery, vol. i., p. 923.
[5] W. Rose and A. Carless: Manual of Surgery, p. 449.
[6] J. F. Schamberg: Diseases of the Skin, p. 174.
[7] J. H. Sequeira: Diseases of Skin, p. 193.
[8] Malcolm Morris: Diseases of Skin, p. 400.
[9] Pye-Smith in Fagge's Principles of Medicine, vol. ii., p. 695.
[10] A. von Winiwarter: Furunkel und Carbunkel, Stuttgard, 1892.
[11] Rose and Carless: Ibid.
[12] M. Kaposi: Diseases of Skin, p. 292.

even a day. Pain, especially in deep-seated carbuncles, may precede other symptoms for a long time. Usually in a few hours the skin gets red and hot, and an area of variable size gets vivid red or bluish with much hyperæsthesia and heat, and sometimes widespread surrounding œdema. When the process is very acute a vesicle or pustule may develop on the surface, which dies away and has nothing to do with subsequent openings in the skin resulting from ulceration from below. Pain, tension, and throbbing increase, and there results a tense, painful, prominent, bright-red oval swelling, with surrounding vivid œdematous and brawny tissue. Pus shows at points beneath the skin and ulcerates through it, this being accompanied by sharp pains.

The more vascular and superficial the carbuncle the sooner is the skin destroyed. Some carbuncles, even small ones, are much less acute—this form of "stodgy" carbuncle has a thick tough slough—there is very little pus, and what pus there is may be confined under the slough; the opening formed in the skin may take days to enlarge sufficiently to allow the tenacious slough to get freed. In carbuncles where the slough is very deep-seated the pain may be intense owing to the imprisonment of the inflammatory effusion beneath the tough unyielding superlying tissues. These carbuncles may fail to "point" at all, the pus running in any direction in the deep tissues.

As the openings in the skin enlarge or coalesce and débris of slough escapes, the pain, tension, and surrounding œdema subside, and the livid skin gradually returns to the normal. Where there have been many openings small separate cavities may ensue, but these soon fall into one, and a deep crater remains with granulating surface, which contracts and heals, leaving often a very small cicatrix; indeed, it is surprising how skin which seemed doomed to slough may entirely recover. But a carbuncle usually takes a week at least to open up, a fortnight to discharge all slough, and a week or more completely to heal; a month is the least time from beginning to end, and many take three months.

One cause of delayed healing is the existence in the tissues of tough fibrous strands of tissue which have not been destroyed by the necrotic process as have the softer tissues. They get tough and even woody, like the rootlets of weeds, and prevent final cicatrisation unless dissected out with knife or scissors.

It is said that carbuncles, unlike boils, spread at one part while healing at another. I think this only happens in that type of carbuncle which is an aggregate of several smaller foci which do not all begin simultaneously or develop equally rapidly.

Two Types of Carbuncles.

There are distinguishable two types of carbuncles: (1) The commoner and more superficial one, which develops mainly in numerous separate foci of necrosis, is very vascular, soon comes to the surface, perforating it by several openings, and has much pus and soft sloughs easily discharged in shreds or fragments; (2) a more deep-seated type with a single tough dense slough having much less vascularity and pus formation; the opening through the skin is formed and enlarged very slowly, and the slough is with difficulty eliminated, being tough and remaining whole instead of softening and breaking up.

In some individuals, especially alcoholics and elderly obese persons of small vitality, carbuncles show no tendency to heal, but continue spreading till a large flattish surface, perhaps as large as a plate, is produced and death occurs from asthenia. Lymphangitis and lymphadenitis are not very common with carbuncles, but the former may produce vivid redness and burning pain of the skin, and the latter may produce very tender enlarged glands. A very troublesome accompaniment of carbuncles is the development of secondary carbuncles near the main one, and of vesicles or pustules on the surface of the skin. The latter may develop and become purulent in a few minutes. They are intensely painful; the more profuse the suppuration, the more liable are they to occur; they seem to develop from the pus running over the skin: this pus, which may be very irritating, producing a scalding pain on the skin, is sometimes itself of strong acid reaction.

Constitutional Symptoms.

Many writers represent these as severe, and speak of fever, rigors, and patients finally sinking from exhaustion. Carbuncles usually occur in debilitated persons—sometimes in diabetics—but ordinarily there is little fever or constitutional disturbance, and the patient is able to get about and follow his occupation. In the early stage, before the skin has given way, there is much pain and a feeling of illness, and long series of carbuncles deteriorates the health by means of pain, sleeplessness, and loss of appetite. But, as a rule, general symptoms are slight in comparison with local symptoms, and severe constitutional symptoms are infrequent. In the grave case of spreading carbuncles the symptoms are passive rather than active, the patient gradually weakening till he dies.[4]

Facial Carbuncles.

Carbuncles may occur on the face, having the same characters and course as elsewhere on the body. On the nose they sometimes create huge swelling and give great pain, but subside, leaving little trace. But there is a special form of facial carbuncle, sometimes called malignant carbuncle of the face, which N. Davies-Colley has thus described:—

"It is generally seen between ages of 20 and 30. Beginning as an itchy pimple, usually upon the upper or lower lip, the swelling rapidly affects the whole lip, which is soon four or five times its natural size. It is brawny, livid, and very painful. Numerous pustules or vesicles form, especially on the red surface of the lip. The inflammation extends upwards towards the eye or downwards towards the clavicle; the eyeball may protrude; severe pyrexia with rigors occur; pain in the side, bloody sputa, and other indications of lung implication follow, and the patient may succumb to pyæmic phlebitis in a week from the onset. On section of the lip numerous small abscesses are found and not a homogeneous slough, as in true carbuncles."[13]

Sir James Paget writes that at one time he did not regard it a carbuncle, but subsequently came to the conclusion it was a carbuncle with peculiarities due to its position. It is distinguishable from anthrax, which it resembles, by bacteriological examination. Clinically "in malignant pustule the vesicles are close together and grouped in a ring round a central blackish slough: the swelling of malignant pustule is less painful and there is no suppuration."[14]

The affection is a very terrible one and is nearly always, if not always, hopeless, but a case is recorded by R. Coombe and R. V. Solly, of Exeter,[15] cured after injection of 50,000,000 staphylococci and two succeeding doses of 25,000,000 each, together with internal use of citric acid. The treatment advised is scraping away the affected tissues, applying carbolic acid, and ligaturing the facial vein.

Diagnosis.

Cheyne and Burghard say "a carbuncle is a number of boils aggregated together"; Pye-Smith that "a boil and a carbuncle are pathologically identical," and S. Milsome[16] writes, "a carbuncle consists of a number of boils grouped together." But a boil is an affection of the follicles of the skin, and a carbuncle may be very much more and does not necessarily affect the skin except secondarily. And though some carbuncles may be merely aggregated boils, others are very much more. Clinically a boil is said to be distinguishable from a carbuncle by its size, but a carbuncle may be very minute and a boil may be of a large size.

It is curious that many writers say boils are usually multiple and carbuncles single: Rose and Carless, H. N. Barrett, Schamberg, Sequeira, all give this as a diagnostic feature, and Erichsen mentions as a singular fact that he once saw a carbuncle followed by a dozen other ones. In any case such a criterion is useless in diagnosis, as it involves waiting to see if the lesion is

[13] N. Davies-Colley: Dictionary of Surgery, C. Heath.
[14] Ibid.
[15] R. Coombe and R. V. Solly: THE LANCET, 1909, vol. ii., p. 145.
[16] Clifford Allbutt's System of Medicine.

multiplied, but boils may be solitary and carbuncles are very frequently multiple.

Another distinction has been made that the projection of a boil is oval or round or conical, while a carbuncle is flat. As a fact a carbuncle may form a projection the size of an orange. Multiple perforations are said to distinguish carbuncles from boils, but carbuncles may have only one opening.

Neither size nor prominence nor multiplicity will serve to differentiate boils from carbuncles, but when an affection localised to the hair follicle or sweat gland occurs it is a boil; if there are several of such lesions aggregated together a superficial carbuncle results; if the lesion extends deeper it is a carbuncle.

Prognosis.

Paget writes, "Carbuncles are looked on in the profession as dangerous things, but not in my experience." They are, however, still written of as "always a serious malady" (Stelwagon).

But, with the exception of the malignant facial carbuncle, I think it is the general experience that the prognosis is good both as regards the carbuncle and the patient. Even diabetics usually get well of carbuncle. But, as has already been said, in broken-down alcoholics or in elderly persons of small vitality death may occur from asthenia. And long successions of carbuncles through a series of years no doubt carry with them elements of danger.

Treatment.

Some advocate operation in all cases, but I will deal first with treatment without operation.

(*a*) Abortive treatment. Local subcutaneous injection of carbolic acid (1 in 20) may help to shrink up small localised carbuncles. (*b*) Plasters of resin or of lead with a circle cut out of the centre have been used, but can only restrain development of small carbuncles. (*c*) Painting with tincture of iodine or a strong chlorinated solution will dry up very small staphylococcal gatherings, but only when they are in the superficial skin. (*d*) Bier's treatment by cupping in the early stage is said to abort carbuncles. As a rule one has to take it that suppuration will occur, and treatment should be directed to relieving pain and to assisting the advance of inflammatory products through the skin. This is best effected by hot fomentations or poultices, preferably the latter, as they retain longer their warmth and moisture and the linseed oil of the meal is sedative to the skin. They must be changed frequently and must not be too hot, or they will scald the inflamed skin. As soon as possible after discharge occurs through the skin, fomentations should replace poultices; this cannot always be done directly discharge occurs, as some foci of suppuration may be later than others. A good plan is to alternate poultices and fomentations till the latter are used alone.

It is desirable to keep the skin as little moist and sodden as possible. But if discharge is very slight a dry dressing will cake and imprison the pus, giving much discomfort, and if the discharge is profuse, the dry dressing soon becomes a wet one. Dressings should be as small as possible; gauze absorbs discharge better than lint. A good plan is to put a large piece of dry lint between the skin and the fomentation with a central hole cut out of it over the central part of the carbuncle with its smaller gauze dressing. Painting the skin around the carbuncle with diluted tincture of iodine also lessens the infectivity, but must not be done so often as to inflame the skin, and it is well not to apply a hot fomentation immediately after painting with iodine tincture. I do not think antiseptic lotions are required before the skin is broken.

The antiseptic used should be non-irritating, used warm, gradually altered in strength or composition, and gaseous as well as liquid.

Antiseptic Applications.

Antiseptic applications should be avoided that irritate or inflame the skin when used continuously for a long period. Carbolic acid is an established application for carbuncles, but it numbs the skin even when used occasionally, and I do not think it is the best antiseptic for the long-continued use required for a carbuncle. Boric acid is very irritating to some skins, even used as boric lint. Flavine is non-irritating and I found it very useful, but it has the disadvantage of staining everything bright yellow. Chlorine and hypochlorites are time-honoured antiseptics. Lister found liquor chlori of the old Pharmacopœia (1870) effective when a 1 in 5 solution of phenol failed. The hypochlorites used to be employed, but of late eusol, which is the first preparation of the actual acid (of which it contains about 5 per cent.), has been used. The hypochlorites destroy bacteria, but do no serious damage to the phagocytic activity of the leucocytes or to the reparative power of the tissues.

But according to W. Martindale, eusol rapidly loses its antiseptic power if warmed, and must therefore be used cold. This is a disadvantage, as cold applications are not congenial to carbuncles; I also found eusol, after being on for some time, developed a marked burning power; when mixed with serum in exudation it probably undergoes chemical change. I prefer the liquor sodæ chlorinatæ in 1 in 20 or 1 in 30 solution; it is a non-irritant powerful antiseptic, and it has what I think is the advantage of emitting gaseous chlorine; I think antiseptics which are gaseous as well as liquid are indicated in local treatment of bacterial affections.

Long Continuance of Chemical Applications: Strapping.

An application, at first painless, gives pain and irritation after it has been used for a time; in the case of flavine, though it does not irritate, the dressings remain stained with it many days after it has ceased to be applied. Probably other chemicals are also absorbed by wound tissues after continuous application, and the hint may be taken that it is as well gradually to lessen their strength or to change the antiseptic employed. Strapping irritates the skin, but it is sometimes impossible to keep small dressings in situ without it, especially when the patient is up and about. I found Mead's less irritating than the white rubber oxide of zinc strapping.

Syringing; Cupping; Compressing.

Nothing is so effective in getting rid of debris of slough and pus from the recesses of a carbuncle as syringing, preferably with the same solution as is used for the dressings. Kaposi writes "removal of necrotic plugs before they are separate is absolutely useless." I think it is worse than useless; it is intensely painful and, if successful, leaves behind it a raw, absorbent surface; nor is any time gained by it, for if sloughs be allowed to separate spontaneously, by the time they do so the cavity will have shrunk to a small size, will be lined with granulations, and will rapidly close. Cupping is recommended for helping separation of slough, but syringing is quite sufficient and is essential. With reference to compression, I. B. Muirhead [17] has pointed out that if a carbuncle be squeezed, after a few minutes "the patient complains of creepy, sickly, or faint feelings, due obviously to a mild form of intoxication," showing that a poison in the carbuncle has been extruded into the system. I do not know if this explanation be correct, but I am sure that manipulation and compression of carbuncles at the dressings do produce a feeling of illness and should be done very gently; if the syringe is used it is not much required.

It is important to abstain from rubbing the skin with spirit or ether soap, which seems to open up the follicles in the skin and is sure to be followed by a plentiful crop of staphylococcal pustules or secondary carbuncles. Too much of any form of washing of the skin is undesirable. Occasional warm water washing and drying with starch or zinc stearate powder is useful, but a long-powdered skin gets "itchy."

Ointments.

Ointments and greasy applications, even when they contain antiseptics such as calomel, favour development of secondary carbuncles and pustules. After a carbuncle has opened up glycerine of carbolic acid diluted six

[17] THE LANCET, 1910, i., p. 1786.

times may be applied, and little plugs of gauze steeped in it may conveniently be inserted in the openings in the carbuncle. Care must be taken that it is not kept applied to the uninvolved skin surface.

Internal Remedies.

The internal remedies recommended are too numerous to mention. Brewer's yeast is a time-honoured one, but I have not found it any use at all. Preparations of nuclein appeared to do good temporarily. Sulphuric acid and the sulphides failed to do me any good. Sulphur is much more effectively taken as flowers of sulphur; about a drachm a day is a very useful remedy; its elimination by the skin is manifest, as silver coins in one's pocket get to look like gun-metal. Tonics of all sort are recommended, and are no doubt good in this as other asthenic states, but they are not curative. The collosol iron malt preparation is very good. Stannoxyl, a French preparation of stannium salts, I have found very useful in acne and boils, but it has not any marked effect on recurring carbuncles. Collosol manganese intramuscular injections, first recommended by my colleague Mr. J. E. McDonagh, have a very marked effect on staphylococcal infections. Carbuncles under this treatment sometimes dry up, shrink, and scab over in a remarkable manner, and of all the various methods of treatment I have tried in my personal experience of five years of carbuncles this alone has been effective. Collosol silver is also very useful as a local application. Opium, according to J. M. McLeod, is "better avoided." Paget says "its use is very valuable." I see no reason why opium should be abstained from in cases of carbuncle, if there are indications to give it; sleeplessness and pain sometimes demand it; it is the best treatment for the phagedæna and sloughy ulcers of legs, &c., and I have thought that carbuncles improved with internal administration of opium. Carbuncle in diabetes, and diabetes itself, are best healed by opium.

Vaccine Treatment.

I do not think severe acute staphylococcal infection is destroyed by vaccines, though its milder forms may be. At the 3rd London Hospital I saw many cases that had been treated by vaccines, but carbuncles persisted, and I think it is the opinion of those who saw very large numbers of cases in France that vaccines were ineffective.

Diet.

Some recommend port wine and other forms of alcohol, and others regard them as harmful. The administration of alcohol in carbuncle, as in other diseases, must be left to the common sense of the medical attendant. Dr. S. J. Nelson[18] lays great stress on dieting in patients with carbuncles, especially restricting sugars, raw fruits, coffee, and alcohol; milk or cream must be taken not with food, but an hour before; he utters a warning against the patient "over-eating, as is generally the case." But I think it is well to let the patient eat as he usually does; a patient who has carbuncles is not usually addicted to over-eating.

Operative Treatment.

Most modern surgical books recommend operation as the only treatment for all carbuncles. This is surprising, for most carbuncles will heal up without operation. I think the guiding rule should be to avoid operations unless there are special indications demanding it, but I am convinced that in some cases operation is necessary. Four, perhaps five, different procedures are described: complete excision; early incision; late incision; incisions with subsequent removal of slough and application of pure carbolic acid or other caustic; and there may be added subcutaneous incision.

(1) *Complete excision.*—G. Lenthal Cheatle[19] writes: "Incision is not enough to evacuate the contents; hence complete and wide excision is the best treatment." J. M. McLeod[20] writes: "Far the most satisfactory method of treating carbuncles locally is eradication of them by excision or scraping." J. P. Warbasse[21] says: "Extensive carbuncle of the neck with a boardy infiltration and dusky congestion is best treated by excision of the whole diseased area as though it were a tumour." J. H. Sequeira[22] writes, "Complete excision gives excellent results." Cheyne and Burghard[23] say: "The best treatment for a carbuncle of moderate size is to make an incision completely encircling it and to dissect it out cleanly under general anæsthesia; nothing is lost by excision, because the skin over a carbuncle is of little use in subsequent healing. The incision must be well beyond the limits of the disease, or local recrudescence is almost certain."

Schamberg[24] writes that "where septicæmic symptoms become marked it is justifiable to excise the whole affected area." Paget does not allude to total excision as a method of treatment in his careful clinical lecture on carbuncle, nor do Erichsen and many other authorities, and E. Doyen in a clinical lecture vigorously inveighs against it as replete with danger and almost sure to be followed by a succession of other carbuncles. The operation, a very severe one, greatly enlarges the area of the lesion; it tends to free hæmorrhage, which, in debilitated patients, is undesirable; it is practically impossible, however widely the "encircling" is made, to excise all tissue infiltrated with the causative organism; a huge raw crater is left, which soon discharges pus profusely, and pus full of virulent staphylococci. In consequence it is impossible to keep the skin dry; the pus is very irritating to the surface, giving rise to crops of satellite carbuncles; the cavity is intensely painful, and takes a very long time to heal. The operation produces much debility and disables the patient for months; in my experience, as in that of Doyen, it does not prevent but rather favours succeeding carbuncles. In addition, administration of anæsthetics to diabetic subjects with carbuncle is a danger, and the operation leaves a large cicatrix, which in some situations may be an undesirable result. The remark in Cheyne and Burghard's article that "the destruction of skin by the operation is of little consequence, because the skin over a carbuncle is of little use in subsequent healing" is not, I think, in accordance with the general experience, which is that the dusky inflamed tense skin over a carbuncle recovers to a surprising extent as the inflammation resolves, and that a very large brawny carbuncle, if not excised, leaves a very small cicatrix. It is noticeable that many of those who recommend total extirpation make the remark that subsequent skin-grating may be required. I think complete excision can be desirable only in very exceptional carbuncles.

(2) *Early incision.*—This procedure is recommended by Foote,[25] professor of surgery, New York Polyclinic Medical School: "It is important incision should be made through the skin before the process has extended widely." Warbasse[26] writes: "The surgeon should not wait until pus has collected, but free incision should be made at the earliest possible time."

I take "early" to mean that the skin is still unbroken. Paget, in a clinical lecture, writes: "Carbuncle in its first stage, when it is hard and still spreading, is generally intensely painful, and may be relieved of some of its pain by cutting, but healing without cutting is quicker than with; this also applies to subcutaneous incisions." I think the best advice is that of Erichsen, who writes: "Some surgeons uniformly adopt incisions, others with equal constancy reject them; I think the most successful treatment consists in allowing the question of early incision to be determined by the amount of tension in or around a carbuncle; should the parts be soft and relaxed an incision is not necessary, but on the other hand, if the tension be considerable, the pain great, and the constitutional disturbance severe, nothing gives such relief as a free and early incision." At the same time

[18] Fitch's Dietotherapy, New York, vol. iii.
[19] System of Surgery, vol. i., p. 3.
[20] System of Treatment, by Latham and Crispe, vol. iii., p. 1112.
[21] Surgical Treatment, vol. i., p. 255.
[22] Diseases of the Skin.
[23] Surgical Treatment.
[24] Diseases of the Skin.
[25] Text-book of Minor Surgery, New York, p. 128.
[26] Surgical Treatment, vol. i., p. 253

this negatives any very early incision, since the advice is to wait until carbuncles demand it. I think that if the incision be early and made to relieve tension, it is undesirable as a routine practice to excavate all the slough, which will certainly still be firmly fixed to living tissue, and I agree with W. Spencer and G. E. Gask,[27] who write, "A deep crucial incision was formerly a favourite practice, but it is much better to make an incision only through the skin down to the sloughing tissue."

A crucial incision is that usually recommended, although Erichsen observes that "a single straight incision does just as well." For mere relief of tension a single incision is often enough, but if the carbuncle tissue is to be scraped out, probably a second incision will be required.

(3) *Incision with application of caustics or corrosives.*

A very generally practised method is to incise, remove all slough, and rub in pure carbolic acid. If incision is made early to relieve pain and tension before the slough is at all loose, in my opinion it is better to abstain from the use of carbolic acid; but if the cutting is performed later and the slough separating carbolic acid should be applied. It perhaps lessens the probability of fresh carbuncles, though it certainly often fails to do so; I do not think it accelerates healing. The skin around should be oiled before the operation to protect it from any acid that may run over it, and the wound should not be packed with cotton-wool or other dressing steeped in carbolic acid, which cakes up with effused blood and prolongs unnecessarily the action of the acid. Whether simple incisions or incisions with use of carbolic acid be practised, they should not extend beyond the inflamed tissue on to the unaffected skin: it is quite unnecessary to open up new ground and to produce fresh edges of wound; the latter are intensely painful, especially if carbolic acid is used, and are almost certain to become infected. The inflamed skin of a carbuncle soon recovers as the carbuncle subsides, and there is no reason with a carbuncle the diameter of a halfpenny to make incisions of the diameter of a penny extending into unaffected skin.

Summary.

Summarising what I have said as to operation, I think operation is advisable in the following circumstances:—

1. Where the sloughing process is very deep-seated, perhaps under the fascia, and the inflammatory effusion is much obstructed in extending towards the surface; in these cases suppuration may extend widely and laterally, running between tracts of fascia and in the direction of least resistance. Pain is very intense, pyrexia may be marked, and serious constitutional symptoms arise. In such cases incision is imperative to give exit to the imprisoned pus.

2. Certain carbuncles, though not large, may be deep-seated and the slough may be very tough and thick; the process is subacute, the surrounding inflammation is not intense, and the amount of pus may be small. The opening formed in the skin may be single and very small at first, enlarging only very gradually; this and the toughness of the slough and its depth often imprison the small amount of pus there is beneath the slough. Eventually the opening in the skin becomes ulcerated away sufficiently for the slough to be got rid of, but it is a long process; toxins are absorbed, and in these cases I think incision should be performed.

3. Incisions to enlarge spontaneously formed openings in the skin or throwing them together are often useful as assisting discharge of slough and in accelerating healing.

4. Operation is sometimes required when final healing is prevented by tough bundles or bands of fibrous tissue which have resisted the sloughing process.

5. If either the first two conditions have led to opening a carbuncle by operation it is well to apply pure carbolic acid at the same time, but it is not desirable to incise a carbuncle otherwise progressing favourably in order to use carbolic acid.

[27] W. Spencer and G. E. Gask: Practice of Surgery, p. 60.

TABES: ITS EARLY RECOGNITION AND TREATMENT.[1]

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Two Cases of Tabes.

IN October, 1912, I was consulted by a man who told me that he was 24 years of age and that he had suffered severe pains in his legs and slight pains in his arms for four years. He had seen various doctors, who had diagnosed neuritis, but had not been able to relieve him of his suffering. Further questioning elicited no other complaint in respect to his health except that he was lacking in energy and was easily tired on going upstairs. His description of pains led me to believe that he was suffering from tabes dorsalis, although he denied venereal infection.

Examination revealed no signs of any organic disease, with the single exception that his appreciation of pain below the knees, on the ulnar aspect of the forearms, and on part of the thorax did not appear to be quite up to the standard of other parts. The eyes were normal in every respect and the reflexes those of a perfectly healthy man. He could toe-and-heel a line backwards and forwards without hesitation, and the closure of his eyes had no ill-effects on his equilibrium. On the completion of my examination I told him that he was suffering from syphilis of the nervous system, and then elicited a history of irregular sexual intercourse on one occasion seven years before. This had been followed by a "pimple," for which he was treated by medicine for a short period. At my request his blood was examined by Dr. Carmalt Jones, who found a positive Wassermann reaction.

Eight years have elapsed since the date of this examination and diagnosis, during which period the patient has been having antisyphilitic treatment at more or less regular intervals. Without going into great detail, I may say that he has had 18 intravenous injections of salvarsan, kharsivan, or novarsenobenzol, two intramuscular injections of salvarsan, 460 mercurial inunctions, and a few courses of grey powder by the mouth. In other words, he has averaged 2½ injections of salvarsan and between 50 and 60 mercurial inunctions per annum. The treatment has not been regulated by Wassermann tests, but the latter have been made on ten occasions, including the one already mentioned. The blood Wassermann reaction first became negative in January, 1914, 15 months after the commencement of treatment. It became slightly positive in May, 1915, and again in September, 1917. On all other occasions the test proved negative. The cerebro-spinal fluid was examined in May, 1914, when it gave a negative Wassermann reaction and yielded a count of 23 lymphocytes per c.mm. In January, 1916, the reaction was again negative and the lymphocytes numbered 8 per c.mm.

During these eight years the patient has been engaged in a strenuous business life with a very moderate allowance of holiday. He married in 1915 and is now the father of two healthy children. He plays a scratch game of golf and a game of tennis, with which he is quite content. In 1918 he was examined by a recruiting board and passed A 1, the verdict being upset by an appeal board at my request. To-day the patient presents no physical signs of organic disease, although a careful examiner may still detect some of the analgesia which I observed at my first interview. He has never entirely lost his pains, but the latter have not interfered with his active life, and he has frequently enjoyed several months together of complete freedom. An occasional bout of pain is easily dispelled by a dose or two of aspirin or phenacetin. Recurrences are usually associated with undue fatigue or with some more or less serious anxiety.

[1] A paper read before a meeting of the Section of Neurology of the Royal Society of Medicine on Dec. 9th, 1920.

This story raises some questions of interest, but before dealing with them I propose to recite another which may add value to the discussion.

In March, 1914, a man 38 years of age consulted me on account of severe pains in his arms and legs, from which he had suffered for six months. In other respects he was perfectly well, and he denied venereal infection. About five years previously he had been troubled with two or three sore-throats, for which he had had his tonsils enucleated. On examination he presented no signs of organic disease, and I could not satisfy myself that his sensibility was in any way abnormal. The pains were those of tabes dorsalis, and an examination of the blood revealed a positive Wassermann reaction. In April, 1914, I gave the patient three intravenous injections of salvarsan, and from that time until October he took courses of grey powder by the mouth. The pains disappeared after the injections and the blood Wassermann reaction was negative in October. I advised him to continue with occasional courses of mercury, and I have recently ascertained that he has remained free from pain and in perfect health.

Tabetic Pains.

In order to justify a diagnosis of tabes in the absence of physical signs it is necessary to state one or two facts about which there can be little disagreement. In the first place, the disease is one which attacks the afferent paths of the nervous system, and it is only reasonable to suppose that its earlier manifestations are of a subjective character—in other words, that complaints indicating a disorder of function precede those which are clearly due to structural defects. In the second place, it will be agreed that in a large proportion of cases of unmistakable tabes careful inquiry will elicit a history, often going back five, ten, or more years, of pains which have been regarded as neuritic or rheumatic in origin, and have not been associated with any other disability. Not once but a score of times have I asked a tabetic patient whether he has suffered from pains. After repeated denials I have altered the wording of my question and inquired for rheumatism. "Oh, yes, I have suffered from rheumatism for years." "What do you mean by rheumatism?" "Why, sharp, shooting pains in my limbs." This conversation shows how little the patient has associated his pain with the disability for which he is seeking advice, and incidentally how few patients understand the language they speak.

Granted that pains can be, and often are, the earliest signs of tabes, can they be distinguished from pains of other origin? I would answer this question in the affirmative and even go so far as to say that the pains of tabes described by a patient who is able to translate his feelings into intelligible language are quite pathognomonic. The fact that they are called lightning pains and that patients often say that they shoot up and down their legs has been responsible for a very general misunderstanding of their true character. When the patient states that they shoot up and down the limb he does not mean that each pain shoots from the hip to the foot or vice versa. He means that during an attack he may have pains first in the thigh and a few minutes later in the foot. If he is asked to describe them in greater detail he will inform you by gesture and by word that these pains have an axis, so to speak, at right angles to the surface of the limb. They stab like a knife or a darning-needle going in, or they resemble the effect produced by taking up the flesh, pulling at it, and letting it go. Further, the pains come not singly, but if not in battalions at any rate in platoons. They are rapidly repeated, several occurring in the course of a second or two, followed by a lull of longer or shorter duration. Bouts of paroxysms may last for a few hours to a few days and then cease for a time. Favourite sites for these pains are the heel, the inner aspect of the shin, and the inner aspect of the knee. The area within which they repeat themselves is small, described by the patient as the size of a crown-piece or no bigger than the palm of the hand. Between the frequent paroxysms these areas are often tender to light touch, so that the patient does not even like the contact of his clothes. Many patients are quite certain that pains may be provoked by a cold draught, by a change of weather, or even by a glass or two of beer. Others are equally sure that responsibility lies with fatigue or anxiety. In the early stages of the disease pains rarely occur during active exercise, but later on walking may be brought to a full stop by a sudden and overpowering paroxysm.

Before leaving the subject of pains let me make it quite clear that those I have described are not the only ones suffered by tabetic patients. There are deep, gnawing, aching pains in the bones, and others which have not the same diagnostic value. Let me also emphasise the fact that tabetic lightning pains must be recognised by their characters and not by their severity. Many patients confess to what they call "niggling pains," trivial in respect to suffering, but identical in nature with the lightning type.

It would be surprising if there were not other subjective phenomena in early tabes, and attention may be drawn to the not uncommon complaint that hot or cold water has become disagreeable or unbearable, that the patient is obliged to have his bath at a temperature which is described as tepid. Not that the hot or cold water provokes pains, but that it gives rise to a sense of great discomfort. This often applies to the whole surface of the body, although pains may be absent or confined to the lower limbs. Similarly it is not uncommon to hear that the fingers are numb when it is quite impossible to determine any disorder of sensibility by tests. This, of course, is not pathognomonic of tabes.

Treatment.

The necessity for advising antisyphilitic treatment of tabetic patients is not now so urgent as it was a few years ago, but it may be doubted whether the principles of this treatment are yet adequately recognised. We are all asked "How long must I go on with treatment before I am cured?" For many years my answer has invariably been, "For the rest of your life." I am never consulted about a primary chancre, but if I were my advice would be the same. It cannot be denied that we are not and never have been in a position to tell a patient that he has been cured of syphilis, and, as neurologists, we are now constantly seeing tabetic patients who have been cured of syphilis by the arsenical compounds, just as 15 years ago we saw those who had been cured by mercury. I maintain that the only honest advice we, as medical men, can give to patients suffering from any syphilitic disease is to the effect that they should continue to have periodic courses of treatment for the rest of their lives. Tell them that prevention is better than cure, and that they must regard this precaution as a method of insurance. In my experience so many victims of tabes and other syphilitic nervous diseases have allowed valuable time to slip by owing to negative Wassermann reactions that my confidence in this test as a method of regulating treatment is shattered.

Conclusion.

Is there any lesson to be learned from the story of the two patients which I have presented to you? The first man was infected with syphilis 15 years ago, and has undoubtedly suffered from tabes for 12 years, during eight of which he has been under treatment. To-day he would be passed as a first-class life by any medical officer of an insurance office who did not know his history. It would be unwise and unjustifiable to say that he is cured, but it is difficult to believe that the natural progress of his disease has not been arrested. And it must be remembered that he wasted four years before his symptoms were recognised and treated. The second patient was more fortunate. Only six months were wasted, and the result of treatment was rapid and lasting, judged by the fact that he has now enjoyed six years of freedom from any kind of symptom. These are not the only cases of the kind which have come under my observation, but I regret to say that it is a rare experience to be asked to see a patient suffering from tabes whose symptoms have not been long-standing.

It is obvious that the value of these observations depends on the reliance which can be placed on the description of pains given by patients, and on the criterion the description affords for purposes of diagnosis. In many cases the description is vivid and easily recognised. In others it can only be elicited by patient cross-examination, avoiding the employment of leading questions. After many years of critical study of this problem I am convinced that the lightning pains of tabes are, for practical purposes, pathognomonic, and that they can and should be recognised before they are many months old. Treatment initiated before physical signs are apparent is not only possible in many cases, but is likely to be attended by good results if persevered with to the end of the chapter.

DIFFICULT CASES OF INFANT FEEDING AND MANAGEMENT.[1]

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I BEGIN by impressing upon you the importance of exact diagnosis. Start right with an accurate diagnosis of your case, and you are on the way to right treatment and correct management. Much confusion exists in the use of such terms as "wasting disease," "atrophy," &c.; and in reference to the wasting infant it is necessary for us to be quite clear on the following points: (1) Is the failure to thrive associated with the condition of the infant at birth, or has it arisen since birth? (2) If the condition was present at birth, is it a case of imperfect development—i.e., immaturity—or is it due to specific disease?

If the wasting baby was healthy at birth, then the case is one of malnutrition. Do not speak of "atrophy," meaning loss of function, in the case of a baby who has never had the function to lose. Recollect how easy it is to slip from a rather casual way of looking at the case into thoroughly wrong diagnosis and treatment. The infant is a wasting infant, is it not? Wasting implies malnutrition, and the treatment of malnutrition is correct feeding. But, unfortunately, the best feeding in the world will not do much for this particular wasting baby. The infant is *not* suffering primarily from malnutrition; it is suffering from congenital syphilis and will not thrive unless mercury is given systematically. Bear with me if I seem to labour this point of diagnosis, for it is no uncommon experience for me to find cases of congenital syphilis treated with patent foods and cases of malnutrition treated with mercury.

Congenital Syphilis.

Congenital syphilis is very varied in its manifestations. It is seen in three stages: (1) where the fœtus dies in utero; (2) where the infant is born with the disease quite evident; and (3) where the infant at birth appears to be quite healthy. Only the third stage concerns us to-day, and here it is very easy to go wrong unless the doctor is alive to the possibilities. The cases that give rise to doubt and difficulty are cases of remote infection. At birth the infant is quite healthy and vigorous, and its weight good. The specific symptoms gradually begin to appear. The first signs are not those generally recognised as syphilitic, for these are not seen till later. The infant's crying is often characteristic, being almost continuous; there is a wildness, a frenzy, about it that takes it out of the category of the ordinary infantile plaints. Restlessness and sleeplessness are prominent features. A little later snuffles may appear, but if alone the latter is useless for diagnosis; many young babies, especially those with malnutrition, show this sign. Ulceration of the palate often occurs, and the ulcers are generally symmetrically disposed on both sides of the middle line. The "café-au-lait" complexion so much dwelt on by various writers is not, in my opinion, of much value for diagnosis; in many cases of well-marked congenital syphilis there is no sign of it, nor is it in the least pathognomonic. The most marked instances of this complexion occur in infants suffering from chronic intestinal catarrh.

In cases of congenital syphilis it is of the utmost importance that the earliest possible diagnosis should be made. I have referred, for instance, to ulceration of the palate. With early diagnosis and appropriate treatment all such lesions should be prevented. Pay no attention to the history of the case. If you are interested in amateur fiction you may find the "history" of interest. Make your diagnosis on the signs and symptoms.

Some years ago I was asked by a colleague to see a young baby. I diagnosed congenital syphilis. He could not accept this diagnosis as it went clean against all his knowledge of the case. He had attended the mother in her first confinement. He had seen the first baby from birth, and never had there been a sign of syphilis. Moreover, my own diagnosis—remote infection—put the other possible explanation—recent infection—out of count. However, I stuck to my diagnosis and advised my colleague to wait for a favourable opportunity and talk the matter over with the father. He did, and he elicited the history that as a young man the father had contracted syphilis, that he was thoroughly treated and had been pronounced cured, but in order to be on the safe side he had received a mild course of anti-syphilitic treatment some months before and for about a month after his marriage.

This case is, I think, worth quoting, because if it had not been for the diagnosis the true history of the case would never have been elicited.

On pp. 281–2 of my "Nutrition of the Infant" (fourth edition) you will find the diet chart and the weight chart of D. F. (R. 1083). That case shows you very clearly the difference that diagnosis makes. The correct diagnosis was not made between June 10th and August 28th, and the infant was in a critical condition. On August 28th the proper diagnosis was made. Mercury was administered, and from that time the weight chart was as satisfactory as it had previously been unsatisfactory. Do not, however, go away with the impression that I am persuading you to give hyd. c. cret. to babies on the off-chance that they may be syphilitic. That is very far from my intention. Mercury for syphilis and not for malnutrition is what I want to say to you.

Treatment of Immaturity.

Now we may pass from congenital disease to congenital imperfection. Immaturity may be, and usually is, due to prematurity, but not all immature infants are premature. As a matter of fact, a full-term immature infant usually presents greater difficulty than a moderate case of prematurity. Some 15 years ago I endeavoured to arrive at some prognostic criterion of viability by means of the weight of the infant. In the atrophic infant I found as a rule that the prognosis was bad if the infant weighed less than one-half of the normal weight for its age. But in infants at birth, or very shortly after birth, I found the weight almost useless as a basis for prognosis; in this case the length of the infant was the most potent factor. The normal infant at birth is 21 inches long, and this measurement is extraordinarily constant. The case of an infant under 20 inches in length is difficult, and that of an infant under 19 inches almost hopeless. In the condition of immaturity the strain generally falls upon the digestive system. Either the infant has to be fed upon an extremely delicate food, because anything approaching the normal standard of milk mixture for a young infant causes digestive disturbance; or, if a moderately good food is taken without indigestion, the infant nevertheless fails to gain in weight.

I may quote from the case of an infant sent to me by Dr. T. Luson, of Kingston-on-Thames, many years ago. After the infant had been two months under my care I wrote to Dr. Luson:—

"It is a remarkable illustration of this class of case. The infant is taking a large amount of highly nutritious food, there is no digestive disturbance of any kind, and yet she makes absolutely no gain in weight. She has not yet reached the stage of structural creation."

[1] Being a Post-Graduate Lecture delivered at the Infants Hospital, London, on Nov. 16th, 1920.

Shortly after this was written the infant started to increase its weight, and steadily rose from 6 lb. 14 oz. to 8 lb. 14 oz. in the course of seven weeks.

In the treatment of premature infants the two considerations of greatest importance are (1) warmth, (2) delicate adjustment of diet. In my experience the best method of maintaining a normal temperature in the infant is to use an electric radiator. The room should be adequately warmed by a coal fire, the window being kept slightly open as a rule to ensure an adequate supply of fresh air. The infant's cot should be placed in a corner of the room surrounded by screens and with the electric radiator underneath or near to it. By altering the position of the radiator and by adjusting the current it is comparatively easy to maintain the temperature near the cot fairly constant. For a premature infant I generally recommend that the temperature should be not less than 80 F. On no account use an "incubator." Almost any method is preferable to shutting a baby up in a box of that kind. See that the extremities are covered with cotton-wool. If the feet are warm I consider the temperature conditions satisfactory.

Many premature infants do fairly well for a week or two and then die, not infrequently because they have been fed on foods enabling them to "carry on" for a short period, but entirely failing to provide them with the stimulus necessary to promote growth and development of function. Fresh milk modified to suit the delicate condition of the infant is essential.

Post-natal Breakdown in Healthy Infants.

From this necessarily brief summary of the difficult cases in infants as a result of ante-natal conditions I pass to the consideration of the baby who is thoroughly healthy at birth and "goes wrong" a few weeks or months after birth. In my previous lecture[2] I dealt with the general principles underlying the feeding and management of the normal infant, and I propose now to deal as succinctly as possible with the treatment of nutritional disorders and disease. Here is a typical history:—

The infant did well for about a month, and then vomiting occurs, motions were rather undigested, and weight no longer increased. The baby was breast-fed; the monthly nurse gave the mother port wine with increased food; the baby got worse, although the doctor was called in and did what he could. A specialist was called in and ordered a remarkable concoction of drugs, bread, and milk. The same specialist was again called in a few days later, and this time ordered asses' milk. A few more days elapsed, and a most distinguished physician was called in. He made a sensible attempt to stem the tide of the disaster, ordering a wet nurse without delay. She arrived, and in the following 24 or 36 hours a material improvement was evident, which unfortunately was not maintained; in the succeeding 24 hours the baby had violent diarrhœa and was seriously collapsed. Still another specialist was sent for—this time myself. I ordered a dose of castor oil and a little brandy, two "feeds" of saline lactose to be followed by a milk mixture of the composition: fat, 1·25 per cent.; lactose, 4·00 per cent.; whey proteins, 0·50 per cent.; caseinogen, 0·25 per cent.; lime water, 5·00 per cent. The infant made an uninterrupted recovery.

I want to draw your attention to certain cardinal points. There could not have been very much wrong with the baby when the simple measures I adopted were all that was required to effect a rapid and complete cure. Let me summarise as follows the mistakes made in this case: (1) overfeeding of the mother; (2) still worse, when the baby was beginning to show signs of indigestion, the monthly nurse increased the mother's diet; and (3) as the infant had to be removed from the breast by reason of its severe indigestion, the indication was for a specially diluted milk for a few days; instead of which a mixture of equal parts of milk and water with added cream was given. A big, vigorous, healthy baby might be able to tackle such a mixture, but to order it for a six-weeks' old infant that for a fortnight past had been suffering from gastric and intestinal disorder was very unwise. I pass over the efforts of the first specialist because they were, in my opinion, merely silly; the second was a first-rate physician, and his advice might have been successful, but even he would not leave the baby alone. Why be so keen on feeding a baby whose stomach is thoroughly upset? True, the wet nurse's milk suited the baby admirably for rather more than 24 hours. How was it that diarrhœa with collapse occurred the day after? The explanation was not difficult; the wet nurse came from Queen Charlotte's, and was a poor woman who went for her meals to the kitchen of a well-appointed house, and the generous diet sent the fat in her milk up with a bound, with disastrous results for the baby.

And what am I to say about the milk mixture that did meet the requirements? The fat was only about one-third of the normal amount, a fair amount of lactose was given, for it is readily assimilated, and of whey proteins, for they are very light and place little strain on the digestive organs. The curd-forming element was, of course, reduced to a very small amount. But this is not all—the "milk" mixture that saved the baby contained no less than 94 per cent. of water. There is one other moral attaching to this case. Those I discussed at the outset were cases of inherent difficulty, for no doctor who knows his work will say that an infant only 19½ inches long at birth is not a difficult case. But here no such explanation is tenable. The difficulty was, to put it as tactfully as possible, due to conditions not present at the time of birth.

Nervous Exhaustion.

The next class of difficult case I have to discuss is one to which I would invite your close attention, for there is, according to my experience, no class of difficult case so little understood by doctors in general or, at any rate, so imperfectly appreciated. I have seen these cases everywhere, and it almost invariably happens that the doctor in charge of the case is distinctly sceptical when he hears my diagnosis. His general attitude is that he hopes it may be true, but fears it is too good to be true—the diagnosis is too optimistic. The very last case I saw before I joined the army was at a consultation in Essex, and the doctor said to me, "This is a very rare case, is it not?" I could not help smiling, for his was the third case I had seen that week. When I see these cases the first thing I do, as soon as possible, is to order opium for the baby—one-quarter of a minim of nepenthe—to be repeated in one hour if required. Now let me attempt to give you an outline of the case.

The parents are healthy, highly-strung people. As a rule, they are not in the least "neurotic," but they are on the nervous side. If I say that the mother is a charming woman, a thoroughly good sportswoman, and generally "one of the best," you will the better appreciate the type of parent I mean. The history of the case, allowing for the necessary human differentiation, is fairly constant. The mother's milk, as a rule, is scanty and soon fails. Some milk mixture is tried and the baby is much disturbed by indigestion, generally accompanied by a good deal of pain. Pain, indeed, is one of the first symptoms. Various foods and various remedies are tried, but nothing avails, and the first stage of the case ends in really terrible trouble. The baby has had nothing in the way of restful sleep for something like 48 hours, and everybody is distracted by its violent screaming and obvious suffering. Intermingled with this first stage or following closely upon it are a whole boat-load of symptoms. Vomiting may be intense so that even plain water will be promptly expelled. Intense spasm of the colon may be present, spasmodic movements of the head and limbs are fairly common, and epileptic seizures may be seen.

But, indeed, the symptoms are protean. Do not worry about particular symptoms so long as you can get the size of the case. The diagnosis is nervous exhaustion, with, as a rule, intense neuro-muscular irritability. When I had cured one of these babies one of the most charming mothers in this country said to me, "I have never before heard of a rest-cure for a three months' old baby." That remark gives you a valuable clue to the whole line of treatment, which is as follows:—

(1) Remove the baby from the extremely well-lit nursery with its very sanitary oil-cloth floor, and place it in a semi darkened, well-carpeted room.

[2] Practical Points in Infant Feeding, Clinical Journal, August 18th, 1920.

(2) See that the nurse is quiet and gentle; everything she does to the baby must be done gently.

(3) The baby must be away from all noise on the stairs or outside the house. In one case I noticed distinctly that every time the dog in the stable-yard barked the baby squirmed. Remove that dog.

The food as a rule should be a nourishing one. Too much dilution will not be useful, for the nervous system requires fat, and, generally speaking, the baby needs building up. Here is the sort of milk mixture that I have in mind for a three months' old baby suffering from neurasthenia: fat, 3·00 per cent.; lactose, 7·00 per cent.; whey proteins, 0·75 per cent.; caseinogen, 0·75 per cent.; lime water, 5·00 per cent.

In regard to milk mixtures I always think in terms of the relative proportions of the constituents, and I would wish you so to think, for I know of no other way by which you can keep constantly in your mind the related factors of the requirements of the infant and the constitution of the milk mixture. But I recognise that my lecture would not be sufficiently practical or useful to you if I confined myself strictly to writing the prescription. I must try to tell you how to get the prescription dispensed, and so must interpose a summary description of my "fat whey" method worked out in the research laboratory of this hospital some years ago, and since then extensively employed in our out-patient department and elsewhere:—

Add rennet to one quart of milk; raise the milk to 100° F.; stir the milk all the time the curd is forming; as the curd forms gradually press it down to the bottom of the jug with a large spoon, so that the curd is finally pressed into a hard lump at the bottom of the jug. Remove the lump of curd, raise the fat whey to 150°, cool rapidly, and then add the required proportion of milk.

Note that the fat whey should only be *raised* to (*not* kept at) 150°. This procedure is necessary in order to kill the rennin ferment. If this were not done the rennin in the fat whey would curdle the added milk when the mixture was warmed to 100° before it was given to the infant. By means of fat whey, water (if necessary), and milk all sorts of combinations may be obtained. For example, three parts of fat whey to one of milk makes a mixture very closely approximating to the prescription I have just given. This mixture is, however, as compared with the prescription, a little deficient in sugar, but there is, of course, a very easy correction for that deficiency, and you need not particularly worry about the added sugar being milk-sugar. There is plenty of lactose in the mixture.

Intestinal Disorders.

I pass now to a brief consideration of intestinal disorder. The cases I propose to discuss are full of difficulty and anxiety. The baby is suffering from diarrhœa, is cold, very ill, and a fatal issue is probable unless you put a stop to the threatening conditions. But do not concentrate your attention too much on the diarrhœa. Long ago Dr. Emmett Holt, of New York, in his admirable book, "Diseases of Infancy and Childhood," referred to the cases in which constipation occurs, remarking that in acute intestinal intoxication diarrhœa is a conservative process of the greatest possible value, and I cordially agree with him. In 1887 Ballard, reporting upon his investigations into the disease known as "epidemic diarrhœa," stated that in his opinion the disease could run its course from first to last, and even to death, without any diarrhœa at all. In my paper on the Bacteriological Diagnosis and Treatment of Alimentary Disease in Infancy and Childhood[3] you will find a fairly complete account of the subject; I can now only give you a very brief summary.

The first thing is to give the infant a good dose of castor oil. Stop all food and give warm sweetened weak tea—one of the best sustaining tonics for the infant and, generally speaking, much better than brandy. If the collapse is urgent, administer by inhalation 1 minim of amyl nitrite—the most potent restorative in all cases of infantile collapse and extremely effective in cases of convulsions. I have long abandoned the subcutaneous and intravenous injection of normal saline solution. If the baby cannot swallow, administer amyl nitrite and then give the normal saline by the mouth in a bottle. I have never known a baby to refuse it, and administered in this way it is extremely effective and gets into the baby much more quickly than by any other method. All fluids administered at this period should be at "super temperature," 110°. A direct microscopical examination of the intestinal dejection is of great importance, for, as a rule, this enables us to put the case into one of two groups: (1) Gram-positive organisms dominant—probably a case of lienteric diarrhœa; or (2) Gram-negative organisms dominant—a case of intestinal toxæmia.

The cases with Gram-negative organisms dominant are serious and, roughly, fall into two types of intestinal toxæmia: (1) acute, (2) chronic. The acute type is very serious.

The importance of the bacteriological diagnosis in these cases can scarcely be exaggerated, for as long as the Gram-negative organisms are dominant the infant is in danger. I should never feel justified in giving a favourable prognosis until I had satisfied myself that this toxic dominance had been obliterated. If the case is a toxic one, fresh milk is essential. Any form of cooked milk or food other than milk handicaps the growth of the lactic organisms and encourages the growth of the toxic organisms. In bad cases of toxæmia fresh milk will not be anything like powerful enough, and cultures of the *Streptococcus lacticus* should be administered with every feed.

In the case of lienteric diarrhœa the treatment is very different. The Gram-positive organisms are dominant. The dejections are acid—very likely much too acid. In such cases a small dose of opium is a very valuable remedy, as it soothes the irritated intestines. The infant should be kept very warm and should not be given fresh milk until the diarrhœa has ceased. In these cases I find that the Ideal brand of unsweetened condensed milk much diluted is, as a rule, a very good food to begin with. In the course of its preparation it would appear that saccharated lime is added to the milk; this combination appears to be very well suited to the needs of the infant suffering from lienteric diarrhœa.

In all cases of serious intestinal disorder the treatment must be conducted with great care. Sometimes the kind of food previously given is so ill-suited to the infant's needs that it must be stopped forthwith. But in other cases the changing of one kind of food to another and very different kind of food is too violent a procedure. For example, I am never satisfied until the infant is getting fresh milk in suitable quality and quantity, but this does not mean that I promptly order a milk mixture suitable for a normal infant. The worse fed a baby has been the less likely it is to digest milk. The milk mixture must be given much diluted, and at first it should not be given at every feed. The proper food must be gradually introduced, for a delicate infant cannot straightway digest fresh milk after it has been deprived of milk for a considerable period.

Conclusion.

Before bringing my lecture to a close I wish to refer as briefly as possible to broncho-pneumonia and the importance of correct feeding in these cases. The baby has been very ill with all the signs and symptoms of pneumonia, but the temperature has fallen; the breathing is much easier, and altogether it is clear that the severity of the attack has passed. Just at the time, however, that the rapid recovery of the infant is expected it becomes clear that something is wrong, and it is very often at this stage of the case that I am called into consultation. These are cases of colon toxæmia; the infant has been swallowing large quantities of mucus, and the decomposition of this mucus in the intestine is responsible for the condition. The leading symptoms are apathy, great drowsiness, weakness, and refusal of food. Always feed infants suffering from broncho-pneumonia on fresh milk and keep the bowels open, so that the mucus is speedily voided.

You will allow that it is not an easy matter to select the material for a single lecture from the experience of some 20 years' dealings with difficult cases in babies. My main idea throughout has been to deal with the kind of case that I have actually found, according to this experience, to be the cause of difficulty and trouble.

[3] American Journal of Diseases of Children, February, 1914.

DIABETES INSIPIDUS
COMPLICATED BY INTERMITTENT GLYCOSURIA.

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THE earliest record of the occasional presence of traces of sugar in the urine of diabetes insipidus is a reference to two cases by Sir William Roberts[1] in 1876. Naunyn[2] in his monograph on diabetes mellitus refers to a single case in his own experience, but no details are given. Von Noorden[3] mentions the fact of transitory glycosuria in diabetes insipidus, though he does not discuss the condition nor describe a case. The only complete record of a case of intermittent glycosuria that we have found is one reported by Mackenzie Wallis and Roper.[4] The main feature of this case was the association of glycosuria with "acidosis" and creatinuria. The presence of polyuria was noted, but its bearing on the case was not discussed. In the light of the two cases here recorded it is probable that the case was of similar nature.

Clinical Record.

CASE 1.—A. Z., age 32, of Jewish nationality, a market porter, was admitted to St. Bartholomew's Hospital under the care of Dr. J. H. Drysdale, on 22/1/20, complaining of loss of energy and strength. The man ascribed his symptoms to the strain of army service, and stated that he had good health until the spring of 1918, when he first complained of a dull pain in the small of the back. He went sick in May, 1918, on account of this pain, and about this date he first complained of thirst, weakness and drowsiness. He described his weakness as a tired feeling, a "droopy feeling," as though he had no life in him. This feeling was liable to occasional aggravation, for which he used the word "drowsiness." At the same time he suffered from a "tight feeling" over both eyes (deep supra-orbital), which sometimes amounted to a headache. He was admitted with these symptoms to the Mile-End Military Hospital, where sugar was found in the urine, and the case was diagnosed as diabetes mellitus. He was told not to eat potatoes, and he was invalided from the army on his discharge from hospital in July, 1918. After his discharge from the army he returned to his work as a market porter, but after six weeks' work he was unable to continue on account of pain in the back and weakness. The symptoms as outlined above have persisted and varied little since their onset. There is no history of past illness, and V.D. is denied. It appears from his statements that he has had polyuria for the past ten years.

Family history.—Father and mother alive and well. Wife healthy, and has had no miscarriages; he has two children—one, aged 8, is delicate and has had pneumonia twice; the other, aged 4, has "always seemed to pass a lot of water," and in infancy suffered from enuresis. She is otherwise bright and active, and a single morning specimen of urine brought for examination was normal.

Condition on admission.—The salient facts observed on admission were noted from time to time unchanged from the date that he first came under observation in May, 1919. General appearance: small build, good physique, no skeletal deformity. Skin and hair natural. The upper lids drooped somewhat and the eyes were a little prominent; the sclerotics were always somewhat congested, so that the facies suggested a man who has been drinking the previous night. The tonsils were hypertrophied, there was marked pyorrhœa alveolaris. Eyes: pupils equal, normal reaction to light and accommodation; optic discs and visual fields normal. In the neuro-muscular system there were no abnormalities, except that neither the knee-jerks nor the ankle-jerks could be elicited; other reflexes were normal but weak. Cardiovascular system: normal. Blood pressure 113/68. Kidneys: the following figures give the fluid intake and output in ounces on successive days under observation in hospital—fluids/urine, 160/136, 192/146, 90/80, 172/–, 140/80, 140/148, 147/110, 110/92, 101/104, 84/60, 62/60, 86/96, 87/–. The following figures give the specific gravity of 24-hour specimens: 1008, 1010, 1010, 1010, 1015, 1012, while it was on two occasions in single specimens 1020 and 1028. There was frequency of micturition, and the above figures show the amount of polyuria. During the six weeks that the patient was under the observation of Dr. W. Langdon Brown in 1919 sugar was only found in the urine in very small amounts on two occasions. In general the urine was clear, pale amber in colour, with a nebula deposit, never containing albumin or diacetic acid.

The blood Wassermann reaction was negative. The diastase in the urine was 22 units. X ray examination of the skull on 13/9/19 by Mr. Martin Berry showed a slightly expanded sella turcica, and the posterior clinoid processes appeared thinned; a faint shadow was visible in the region of the pituitary body. From the skiagram it did not appear that the condition was necessarily beyond the limits of normal variation. A later skiagram taken by Mr. H. George in February, 1920, was reported on as follows: "The pituitary fossa is a little on the large side, its shadow measuring 14 × 10 mm. (normal = 12 × 9 mm.), the posterior clinoid processes are somewhat thinned and the sella turcica somewhat enlarged."

Other points noted were as follows: the hands were small, the fingers markedly square-ended, the feet and toes were of normal shape, as were the ears and nose. Constipation was the rule; sleep was undisturbed and appetite good. Loewi's reaction was negative.

CASE 2.—P. M., age 35, war-pensioner and previously a gasworks stoker, was admitted to St. Bartholomew's Hospital under the care of Dr. Drysdale, 28/2/20, having been sent to Dr. Mackenzie Wallis by Dr. A. S. Woodwark for a blood-sugar analysis. His chief complaint was of headache and pains in the small of the back. On account of the clinical resemblance of the case to the foregoing patient, who was at that time in the hospital, he was admitted for examination. When in France, working in a Labour Corps behind the line, and shortly after rejoining his unit from sick leave in England, he complained of the onset at one time in October, 1918, of thirst, polyuria, and headache. The headache was a pain across the right eye just above the eyebrow. At about the same time he first complained of pain in the small of the back. He was kept under observation and was told that sugar had been found in his urine. He was ordered a restricted carbohydrate diet consisting of meat, dry toast and milk, without jam, sugar, or potatoes. Fourteen days later he was free from headache and thirst and felt much better; he accordingly rejoined his unit. Shortly afterwards he complained of pain in his stomach; this was diagnosed as dental dyspepsia. From this date on he passed from one hospital to another, only once returning to his unit for one week, being occupied, apparently without any particular symptoms of disease, until his demobilisation in November, 1919, in dental treatment. Nine days after his return home in November, 1919, he complained again of the onset of headache, thirst, and pain in the back. These symptoms persisted without variation until his admission to the hospital. He has had polyuria as long as he remembers, and has had difficulty in holding his water; he has to pass it once or twice during the night. Except for occasional quinzies no past illnesses. Venereal disease was denied. In May, 1915, he was rejected for the army on account of being round-shouldered and deformity of the feet (hammer toe). In July, 1918, having been recruited for a Labour Corps in the meantime, he was invalided home from France with inflammation of connective tissues, legs and feet. It was after rejoining his unit from his illness that his pituitary symptoms first developed.

Condition on admission.—General appearance: considerable growth of coarse dark hair in all the normal regions. It was a marked feature of his appearance, though not beyond the normal variation. The skull was dolichocephalic and the lower jaw prominent. There was marked dorsal kyphosis and some degree of lumbar lordosis; the kyphosis was attributed by the patient to carrying a heavy weight on the back soon after leaving school. No other skeletal deformity was present. He was a man of low intelligence, but in other respects cerebration was normal. In addition to the symptoms already noted he complained of a feeling of tiredness; he explained this symptom by standing at attention and saying that he could not stand thus, but only like this, and then he let his shoulders flop forward and stood with knees a little flexed. The tongue was clean and moist; the tonsils hypertrophied; all teeth except three were missing, and their place taken by false dentures. The cardiovascular system was normal. The heart gave evidence of slight hypertrophy, and there was slight thickening of the radial artery. These signs were not more than might be expected in a gasworks stoker 35 years old. The blood pressure was 110/65. The neuromuscular system was normal. The optic discs were normal. There was no refractive error; the visual fields were normal; all reflexes were brisk and natural. There was no evidence of kidney disease. The urine on boiling gave a faintest cloud; there was, however, no precipitate with salicyl-sulphonic acid, and this was decided to establish the fact that no albumin was present. Many specimens were examined for casts; occasional hyaline casts were found in centrifuged

deposits both from fresh and 24-hour specimens, but no abnormal deposit was found. From this aspect the urine was therefore normal. During the period of the patient's observation in hospital a trace of sugar was found in the urine in four specimens. This sugar was identified as glucose. The following figures give the range of variation of fluid output and intake for 24-hour periods: Intake/Urine = -/64, -/34 plus, 84 plus/108, 81/72, 78/90, 81/84, 95/112, 72/120, 88/106, 102/106, 91/104, 82/112, 97/100, 91/98, 99/90; these figures do not correspond accurately, as the patient was in some respects difficult to control. The following figures give the range of variation in specific gravity of 24-hour specimens: 1013, 1005, 1010, 1010, 1011, 1007, 1010, 1010. The urine was pale, slightly hazy, though perfectly clear immediately it was passed. The faint haze on boiling not due to albumin led to a suspicion of cystitis, although there was no other evidence of this complaint. A catheter specimen of the urine was examined bacteriologically, but both aerobic and anaerobic cultures were negative. Diacetic acid was never found in the urine. As regards other tests, the blood Wassermann reaction was negative; the diastase in the urine was 22·2 units (normal). Loewi's reaction was positive on March 5th, though negative at a later date (15/3/20).

Without other treatment than rest in bed the patient suddenly recovered of his symptoms on March 6th. He said on the following day that he felt quite well, that he had lost his headache and pain in his back, and that his energy had returned. There were no outward signs of this change in his condition. The polyuria continued as before, and though he seemed to drink as much as previously he said that he had lost the thirst of which he had previously complained. While not attaching too great importance to signs whose significance is still an uncertain matter, it is noted that the Loewi's reaction was positive while he felt ill and negative when he felt that he had recovered. A difference in the response to sugar was also noted.

Chemical Pathology.

Technique.—Specimens of urine were repeatedly tested for sugar by chemical and polarimetric methods. A negative reaction with Benedict's solution was regarded as indicating the absence of sugar in pathological quantity. Blood sugar determinations were made by the writer's method,[5] and the diastatic activity of the urine by a modification of the original Wohlgemuth method.

CASE 1.—15/9/19. Blood sugar = 0·1 per cent. (normal). January–February, 1920, sugar tolerance tests:—28/1/20: 6 A.M., 50 g. glucose taken; no glycosuria followed. 30/1/20: 6 A.M., 100 g. glucose taken. Urine: 6–7 A.M., vol. 190 c.cm., 0·595 per cent. sugar, total 1·13 g.; 7–8 A.M., vol. 160 c.cm., 0·356 per cent. sugar, total 0·569 g.; 8–9 A.M., vol. 165 c.cm., 0·00 per cent. sugar, total —; 9–6 A.M., vol. 1770 c.cm., 0·356 per cent. sugar, total 6·3 g. Report: The patient passed 0·1 per cent. sugar in the urine before the test, and this amount was increased after taking 100 g. glucose. The tolerance appears, therefore, to be less than 100 g. and more than 50 g. 9/2/20: 6 A.M., 75 g. glucose taken. Urine: 6–7 A.M., vol. 200 c.cm., 0·2 g. per cent. sugar, total 0·4 g. Urine examined in hourly specimens afterwards contained no sugar. Report: These observations show that the sugar tolerance of this patient lies above 50 and below 100 g. 5/2/20: 10.50 A.M., blood sugar 0·09 per cent., urine no sugar; 11 A.M., 25 g. glucose taken; 11.15 A.M., blood sugar 0·122 per cent.; 11.30 A.M., blood sugar, 0·137 per cent.; 12 noon, blood sugar 0·09 per cent.: 12.30 P.M., blood sugar, 0·09 per cent. Urine, 11 A.M.–12 noon, contained 1 per cent. sugar. Total vol. 245 c.cm. Total sugar, 2·45 g. Report: Tolerance on this day was lowered. The blood sugar showed a practically normal change following 25 g. glucose, but the threshold value was lowered.

CASE 2.—2/3/20: Before test, blood sugar 0·11 per cent.; urine, no sugar. 11 AM., 50 g. glucose taken by mouth. 11.15 A.M., blood sugar 0·207 per cent. 11.30 A.M., blood sugar 0·307 per cent. 12 noon, blood sugar 0·226 per cent. Urine, 11 A.M.–12 noon contained 0·7 per cent. sugar; total volume 310 c.cm.; total sugar 2·2 g. Report: The blood sugar showed a definite response to the ingestion of 50 g. glucose, the marked hyperglycæmia being maintained for over one hour. It is evident from the figures that the leak point for sugar is high but the tolerance low.

After the patient had made a clinical recovery another tolerance test was performed with the following result: 15/3/20: Before test, blood sugar 0·1 per cent.; urine, no sugar. 11 A.M., 50 g. glucose taken by mouth. 11.15 A.M., blood sugar 0·113 per cent. 11.30 A.M., blood sugar, 0·140 per cent. 12 noon, blood sugar, 0·122 per cent. 12.30 P.M., blood sugar, 0·110 per cent. 1 P.M., blood sugar 0·09 per cent. Urine, 11 A.M.–12 noon, contained no sugar; urine, 12 noon–1 P.M., contained no sugar. Report: The lowered glucose tolerance observed 13 days previously had disappeared, corresponding with the improvement in the condition of the patient. The response to the sugar ingestion was normal, and there was no glycosuria.

The nature of the reducing substance in the urine in both patients was established as being glucose by the fact of its being dextro-rotatory, and by the preparation of glucosazone crystals.

Discussion.

The most constant and important signs of disease shown by these two patients were polyuria and the secretion of urine of low specific gravity. Chemical examination of the urine, microscopical examination of its deposit, and clinical examination of the cardio-vascular system ruled out renal disease as a cause of the abnormal condition of the urine. Nor can it be ascribed to polydipsia or to gross disease of any part of the nervous system, in so far as such disease can be excluded by clinical examination. It is considered that, in the absence of demonstrable functional or organic disease of the central nervous system and kidneys, the diagnosis of diabetes insipidus is justified in the presence of these two signs; there was evidence in both cases that the complaint was of long standing. The cases are examples of the complaint in its slightest form, since their excretion of urine was not often more than 4 litres in the 24 hours and was some days as little as 2 litres, while the specific gravity of the urine was generally about 1010 in a 24-hour specimen, and sometimes normal, in a single specimen.

The association of diabetes insipidus with pituitary disease has long been recognised. More recently G. L. Kennaway and J. C. Mottram[6] have reported two cases of diabetes insipidus in which there was evidence of pituitary involvement, and in this communication they give an account of present knowledge of the relation of pituitary disease to diabetes insipidus. These observers come to the conclusion that "the existing evidence of morbid anatomy seems on the whole to be distinctly in favour of an association between lesions of the glands and the disease in question." Though disease of the pituitary gland may occur without polyuria there do not appear to be any cases on record in which diabetes insipidus occurred and in which the pituitary was proved post-mortem to be normal, or where it was normal the stalk free from any pressure. Physiological evidence supports pathological evidence on this point. Thus Swale Vincent[7] states that "so far the only symptom of acromegaly which appears to have a direct relation to the function of the pituitary, as revealed by physiological experiment, is polyuria." From the clinical aspect we know polyuria as a frequent symptom in both acromegaly and dystrophia adiposis-genitalis. Neither patient showed any very obvious sign of pituitary disease, but in spite of this, on the strength of the general evidence outlined above, it is justifiable to diagnose both cases as pituitary dystrophies and to inquire particularly for the presence of other signs in support of this diagnosis. Case 1 had an enlarged sella turcica, an enlargement which of itself is not sufficient perhaps to determine a pathological condition, but of importance in relation to the facies (the slight exophthalmos and congestion of the sclerotics) and the general consideration of the case. Case 2 varied from the normal in the direction of acromegaly in the following skeletal features: the lower jaw was underhung, the skull dolichocephalic, and there was dorsal kyphosis; hirsuties was marked.

Both patients made chief complaint of headache and definite complaint of lassitude. This lack of energy is a common complaint in pituitary disease, varying from a feeling of inertia and drowsiness to remarkable periods of somnolence. The headache in both cases was frontal; in Case 1 it was bilateral and in Case 2 limited to the right supra-orbital region. Headache is a constant symptom in pituitary disease. In the cases of pituitary disease described by K. Falta[8] and Harvey Cushing[9] headache is rarely absent. Cushing regards a bitemporal headache as the more characteristic of pituitary disease. At the same time, many of the patients whose histories he gives complained of a severe frontal headache. In our experience frontal headache situated deep in the supra-orbital region, and described by the patient as a tight feeling or gnawing pain, is not uncommon in pituitary disease, and Pardee[10] has lately drawn attention to the frontal distribution and intractability of the headache in pituitary disorders.

There remains for consideration the intermittent glycosuria exhibited by both patients. This glycosuria is in no sense an early phase of diabetes mellitus on account of its slight degree, its intermittent nature, its non-progressive course, and its independence of diet. In neither case did a large carbohydrate meal lead to the appearance of sugar in the urine. The intermittent nature of the glycosuria distinguishes the cases from diabetes innocens, and it is of interest that one of the cases recorded by H. Salomon[11] in his original communication on diabetes innocens complained of polyuria, and did not therefore perhaps belong to his group. Apart from the case described by Mackenzie Wallis and Roper, the only group of cases to which our cases bear any resemblance are the intermittent glycosurias observed in acromegaly. Sir Archibald Garrod[12] has written that the glycosuria in some cases of acromegaly is intermittent "although the patient's diet was by no means poor in carbohydrate." In the same context he notes that "in the newer literature of pituitary tumours, since 1886, Borchard found no record of glycosuria apart from acromegalic symptoms." The chemical examinations of the blood sugar establish the importance of these small traces of glucose occasionally found in the urine in these patients. These researches indicate a lower sugar tolerance in both cases and a lowered leak point in one case, and they further lead to the prospect of new light being thrown on this aspect of sugar metabolism.

In the present state of our knowledge the positive Loewi's reaction observed in Case 2 is to be regarded as an indication of a polyglandular dystrophy, and not necessarily as a sign of pancreatic disease. The association of pancreatic disorder with acromegaly is referred to by several writers (v. Falta), but in our patients there was no evidence of pancreatic disease other than the glycosuria; the diastase reaction was normal in both.

Summary.

The two patients here described appear to be examples of a pituitary dystrophy comparable to those clinical cases of thyroid dystrophy in which there is no marked change in the size of the gland and no distinct clinical picture of either hypo- or hyperfunction. From their past history neither case seems to be progressive, though Case 2 is liable to periodic variations. These patients are not therefore regarded as early cases of acromegaly or other recognised pituitary syndrome, but rather as persons in whom the pituitary is functioning irregularly and perhaps at times excessively. We believe that cases of the type here described have not been previously recognised. The two patients are alike in their salient features, and they do not fit into any of the subdivisions into which Cushing divides his five main groups of dyspituitarism. The interest of the cases does not lie in the possibility of their representing a group of dyspituitarism that has hitherto escaped recognition, but depends on the fact that such cases may lead to the recognition of clinical phases of pituitary activity that bridge the gap between physiological and pathological states. When this borderland has been explored the earliest stages of progressive pituitary disorders will be more easily recognised. Cushing remarks that "it would be precocious to make a diagnosis of 'acromegaly' before enlargement of the acral parts of the body occurs. Still it would be possible." Though our two cases are not regarded as early cases of acromegaly, they do bring nearer the possibility that Cushing foresees.

We wish to thank Dr. Langdon Brown for permission to make use of his observations on Case 1, when the patient was under his care in the autumn of 1919, Mr. Foster Moore for his examination of the fundus oculi of both patients; and Mr. George who gave us the advantage of his special technique in the measurement of the pituitary fossæ by X ray photography. Dr. E. I. Lloyd, house physician, was responsible for the care of the patients and for carrying through the routine of their examination. We are indebted to Dr. Drysdale for permission to publish these records of his cases.

(*Continued at foot of next column.*)

THE CULTURAL DIAGNOSIS OF ENTERICA IN INOCULATED INDIVIDUALS.

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THERE appears to be an impression that preventive inoculation against enterica diminishes the chance of recovering the causative organism from the blood. Thus, in a recent paper by R. P. Garrow,[1] entitled "The Myth of 'Atypical' Enteric Fever," with the argument of which I am in sympathy, in substance at least if not in detail, the following statement occurs:—

"The difficulty of recovering enteric bacilli from the blood of inoculated soldiers is well known, even in the early stages of illnesses which clinically resemble enteric."

Is this a well-known fact? If so, I am not aware of any published data in its support. In bacteriological circles on the Western front during the late war it would appear that a similarly pessimistic view was held. Thus A. E. Webb-Johnson,[2] writing of his experiences at a stationary hospital in France, remarks:—

"With regard to inoculation there is another point, which is possibly one of the most important. The specific bacteria are not found in either blood, fæces, or urine with anything like the same frequency nor in such numbers as in the non-inoculated, since the microbes are killed more rapidly and effectually, owing to protective substances being in the body ready for the attack."

The fostering of such views gave, I imagine, the impetus to that concentration on agglutination tests which formed such a feature of enteric diagnosis in France. Largely on that basis of diagnosis cases of enterica have been analysed from the standpoint of clinical syndrome, and for some time it has been current teaching that inoculation profoundly modifies the type and severity of the attack in inoculated individuals. With this aspect of the case I am not immediately concerned, but I hold that any comparative analysis of clinical syndrome or of incidence and mortality statistics in inoculated and uninoculated individuals must, to be above all reproach, be founded on a culturally diagnosed series of cases.

Analysis of 373 Cases in American Army.

This has been done in a recently published and most valuable article by the late Major V. C. Vaughan,[3] of the United States Army, whose conclusions are in agreement with those of Garrow (loc. cit.). This author submits with full bacteriological particulars a clinical analysis of 373 cases of enterica (mainly typhoid) which occurred among American troops in France, all of whom had been inoculated with the triple vaccine. For the purpose of his analysis the following proviso was laid down:—

"No case has been accepted for our statistical study as being undoubted typhoid or paratyphoid fever unless the causative organism has been isolated either from the urine or fæces, or preferably from the blood. I recognise that the finding of the typhoid or a paratyphoid bacillus in the fæces alone does not establish a diagnosis, but have assumed that this finding, together with the presence of characteristic clinical symptoms of the disease and with negative blood cultures, form sufficient evidence on which to base a diagnosis."

A series of 270 cases in which *B. typhosus* was recovered from the blood or excreta (180 by blood culture) is taken for the main clinical study. His conclusions cannot be summarised here, and I need only say that the results of the analysis went to show that vaccination had not altered the essential characters of the disease.

(*Continued from previous column.*)

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"The most striking feature of the disease in the inoculated is its almost classical resemblance to the old typhoid as we knew it in the unvaccinated. Not only was this resemblance true on paper, but it was likewise true at the bedside."

No convincing evidence was found that vaccination lessened the chance of finding the infecting organism, and in fact Vaughan's positive cultural results from blood, urine, and fæces reached remarkably high figures, as we shall see. Some of the bacteriological data are of great interest, and I propose to consider them in the light of certain data from the Mesopotamian laboratories now published for the first time. Of Vaughan's series of inoculated individuals 274 were submitted to blood culture (repeated if necessary) with a yield of 180 positive results—viz., 143 at first trial, 25 at second, 3 at third, and 9 at fourth. Blood culture was successful in the first week in 65·7 per cent. of trials, in the second in 54·7 per cent., in the third in 45·7 per cent., and in the fourth in 21·7 per cent. The urine was cultured in 109 cases with positive results in 33·9 per cent., and of 270 cases in which the stools were examined no fewer than 193 (70·2 per cent.) were successful. Simultaneous blood and fæces cultures were made on 150 cases in successive weeks of the disease, and the results showed that during the first week the chance of success by stool culture was about two-thirds of that obtainable by blood culture, whereas in the second week the chances were about even. In the third week stool culture gave a somewhat better chance. From the third week onwards the value of both methods decreased. To summarise, Vaughan's series of 373 cases of enterica in inoculated troops comprised 270 cases of culturally proved typhoid, 9 cases of culturally proved paratyphoid A, 23 of paratyphoid B, 12 classified as paratyphoid "indeterminate," and 59 cases of "clinical enteric" which did not yield to bacteriological inquiry. Vaughan's series of 373 cases must be regarded as a very specially observed and repeatedly investigated class, and it is not surprising that the yield of positive isolations reached the high figure of 84·1 per cent. all over.

Blood Culture Results from Mesopotamia.

With the varying conditions obtaining in a wide and scattered front such as we had in Mesopotamia, a figure such as this was not to be expected, but I am quite satisfied that even this figure may be attainable (and indeed was approached) in special circumstances where ward and laboratory act in partnership and all forces are concentrated on the diagnosis of enterica by isolation of the causative organism. I have summarised elsewere[4] some of the bacteriological statistics in connexion with enterica as met with in Mesopotamia, and I may simply repeat here that we had two classes only of notified enterica—viz., (1) confirmed enterica (isolation of T., A., or B.) and (2) clinical enteric group or E.G. Diagnosis by agglutination methods was not accepted officially and was not practised. During the period October, 1917, to December, 1918, of 1577 cases of notified enterica in British and Indian troops, 734, or 46·6 per cent., were confirmed by the laboratories (1039 British cases yielding 36·9 per cent. of confirmations and 535 Indian cases yielding 56·8 per cent. of confirmations). When all the circumstances are considered the figures are, in my opinion, highly creditable to the Mesopotamian bacteriologists and, as I have indicated, higher figures up to 70 or 80 per cent. were reached in certain hospitals dealing with small but thoroughly investigated series. Now, what facts emerge from a consideration of these cultural results in relation to previous inoculation? From my notes of the Mesopotamian laboratory returns I have abstracted the cases of successful blood culture for the period August, 1918, to January, 1919 (six months). I find that of 139 cases diagnosed by blood culture 78 (viz., T. 22, A. 38, B. 18) were inoculated men, 28 were returned as not inoculated (T. 19, A. 5, B. 4), and 33 were set down as "no pay-book entry" (T. 15, A. 14, B. 4). Thus of the total at least 56·1 per cent. yielding positive blood cultures were definitely inoculated men; 35 had received T.A.B. vaccine in 1918, the year of their attack, 24 had received their last dose in 1917, 17 their last dose in 1916, and 2 in 1915 (probably typhoid vaccine only). There would, therefore, appear to be no justification for the assumption that in a mixed group of inoculated and uninoculated men it is the latter which are most likely to yield positive blood cultures.

Blood Culture and Period of Disease.

One other point may be usefully referred to here. Unsubstantiated statements have been made with regard to the duration of the bacteriæmia in typhoid and paratyphoid infections respectively as affecting the chance of successful blood culture. Accurate data on this matter can be obtained only by a very special investigation involving repeated blood culture in a series of culturally proved cases (by blood or otherwise), and so far such data are not forthcoming. It may, however, be of interest to bring forward certain figures connecting successful blood culture with period of disease in typhoid and paratyphoid infections respectively; I have notes of 102 cases of typhoid, 84 of paratyphoid A, and 26 of paratyphoid B. The results in 4-day periods are as follows:—

	No. of cases diagnosed of		
	Typhoid.	Para. A.	Para. B.
Between 1st and 4th day	11	12	8
,, 5th ,, 8th ,, ...	51	46	12
,, 9th ,, 12th ,, ...	26	20	2
,, 13th ,, 16th ,, ...	8	3	3
17th day and afterwards	6	3	1

Assuming that the great majority of these cases arrived in hospital towards the end of the first week of the disease the distribution in time of the various diagnoses made would seem to show no material difference whether *B. typhosus* or *B. paratyphosus A* was the infecting organism. The figures for *B. paratyphosus B* are too small to be of significance.

Discussion and Conclusion.

Though I am unable to find any support for the assumption that in the inoculated individual who contracts enterica the degree and duration of the bacteriæmia are altered to the consequent detriment of successful blood culture, I must admit the plausibility of the assumption. R. L. Stone[5] has shown that typhoid bacilli injected intravenously into immunised rabbits disappear from the blood and tissues (except possibly the gall-bladder) in 24 hours, whereas in normal rabbits similarly injected bacilli may take ten days or more to disappear. Doubtless in the great majority of inoculated individuals who ingest typhoid bacilli some mechanism of this kind is at work to prevent infection. What part is played in this disappearance by bactericidal bodies in the blood and tissues must be left at present an open question in view of some recent divergence of opinion on the question of increased bactericidal antibody-content in the blood of animals immunised against *B. typhosus*. On the other hand, we must bear in mind that neither in the individual nor in the mass is immunity absolute. Even under the most rigidly controlled laboratory conditions, when large series of animals are taken, no antigen will produce an immunity which protects 100 per cent. of the immunised against a dose which kills 100 per cent. of the controls. The experiments of S. Rowland[6] on immunisation of rats against *B. pestis* may be consulted on this point.

Under actual military conditions, although some approach to constancy of antigen and degree of immunisation may be realised, there can certainly be no constancy of the test dose or of the individual human factor. The results in the rabbit, an animal naturally insusceptible to typhoid fever and artificially educated to deal with *B. typhosus* introduced into its circulation directly, need not, in my view, have their strict counterpart in the vaccinated man who manages to contract by another channel of infection the germs of a disease to which his race is naturally susceptible. In the light of Besredka's recently promulgated views on immunity in enteric infections, the explanation may be found in inefficient immunisation of the intestinal epithelium or in a breakdown of what amount of immunity it may have acquired. The disease would then in all probability proceed on ordinary lines.

Vaughan (loc. cit.) in the search for possible explanations of the occurrence of typhoid in inoculated American troops, makes the following, among other suggestions. The vaccinated person takes into his

interior probably large doses of the infecting bacilli, the majority of which he is capable of dealing with. Some, however, may find a nidus in the gall-bladder (as in the immunised rabbit) and there proliferate.

"The numbers of organisms that are continually discharged in the bile and resorbed through the intestinal mucosa call on the immunity mechanism for constant and exhausting action."

When to this antibody-exhaustion is added the fatigues and hardships of war with its attendant diarrhœal troubles, the chances of an ultimate systemic infection are enhanced. This view, which would attribute a systemic infection to a breakdown of immunity in a carrier presupposes some evidence of intestinal trouble preceding the attack, and in this connexion Vaughan notes that of 104 inoculated men who contracted typhoid fever 60 per cent. had antecedent diarrhœa. It was Vaughan's opinion that two of the chief causes of typhoid fever among vaccinated American troops were (1) the ingestion of overwhelming doses of the infecting organism, and (2) loss of resistance and antibody-exhaustion due to the exposures of military life. It should be mentioned that the majority of Vaughan's cases had received the saline triple vaccine and a minority the lipovaccine. In a non-vaccinated population of all ages the variety of clinical forms in which enteric disease presents itself has long been recognised. Whether in a vaccinated population there occurs a relatively greater proportion of mild cases among the attacked than would be found among the attacked of a non-vaccinated population must be determined on a basis of cultural diagnosis. The practicability of such diagnosis is not, so far as present evidence shows, enfeebled by previous inoculation.

In conclusion I may add that I have been in communication with Sir William Leishman on the question ventilated in this note. Unfortunately it may be some time yet before the relevant data can be extracted from the medical case-sheets and laboratory files of the Western front. Sir W. Leishman informs me, however, that bacteriologists in France certainly supported the views I have attributed to them in the present communication. The question is of high theoretical and practical importance, and the publication of this note may, I hope, stimulate further inquiry.

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TREATMENT OF THE CRIPPLING DISABILITIES OF CHILDREN.

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What are the main crippling disabilities?—In every list of cripple children, whether compiled in this country, in America, or on the Continent, three main groups constitute the bulk, and do not vary much in their proportions: (A) Deformities congenital or acquired; (B) paralyses; (C) tuberculosis of joint and bone. Of 1130 cases under treatment in Shropshire and North Staffordshire in 1919, and listed in Birmingham in 1911, there were: Group A, 35 per cent.; Group B, 32 per cent.; Group C, 28 per cent.; various, 5 per cent. Of 12,496 cripple children of whom the writer has been able to obtain particulars, in 35·4 per cent. the crippling disability is non-pulmonary tuberculosis, and in 52·5 per cent. it is of the A or B group. The total number to be dealt with is very large; the inquiries as to cripple children, quoted in the report of the chief medical officer of the Board of Education for 1919, give returns averaging 8·6 per 1000 school population, and it is clear that many of these returns are incomplete and give only a fraction of the true proportion.

Is there failure in the treatment of these disabilities?—At present the failure is exceedingly great; the principal reasons are as follows: (1) the cases do not, as a rule, get into touch with efficient treatment early enough; (2) many of the cases never get efficient treatment at all; (3) a great majority of the cases suffer for lack of after-care. Every neglected congenital deformity, every "hump-back," every joint deformity due to infantile paralysis, indeed, the great majority of all cases crippled by this disease, are examples of one or other, or even of all, of these failings.

Is the present system to blame?—There is no system! It is the absence of any organisation, even of any general agreement as to organisation, that makes the treatment of the child threatened with crippledom so ineffective. Some cripple children go to the union infirmary and stay there; they often have no education, and generally no treatment unless they are acutely ill, and then often only for a short period at the nearest general hospital. These are not imaginary statements; they are based on common findings of the inquiry carried out by the Central Committee for the Care of Cripples. Some go to special hospitals for non-pulmonary tuberculosis, but, as a rule, only when they are definitely suffering from established tuberculous arthritis. To quote from a recent discussion by specialists in another sphere: "The specialist sees the difficult cases and the failures." Surely many cases of early tuberculous disease become difficult cases and lead to permanent crippledom merely because of lapse of time. That is typical of the failure of the present chaotic arrangements.

Typical Cases of Failure in Treatment.

Take an early case of *tuberculous hip.* A child develops a limp and cries at night. His mother knows, possibly the district nurse knows, perhaps he is even taken to the doctor. A limp and a cry or two, and for physical signs just limitation of movements of the joint in all directions, with a little flexional deformity from muscular spasm. There is no apparent sign of urgency. But actually there is no time to be lost. Prompt immobilisation of the affected joint, a bed in an open-air ward, and good feeding will prevent suffering, and will almost ensure, in perhaps nine months, full recovery, often without any permanent disability.

But only very few of these cases actually find their way into hospitals for tuberculous joints at this stage. The golden opportunity slips by, there is uncertainty, then delay, and the disease tightens its grip! Suffering and illness increase, the text-book picture becomes easily recognisable, the joint surfaces are destroyed, there is danger to life, treatment is now not a matter of months but of years, and the child at best will be a cripple. Actual instances without number can be given of children who have paid by their prolonged suffering and illness, their joint destruction and permanent crippledom, the extreme and needless cost of our present lack of means for early ascertainment and facilities for immediate treatment.

Take *infantile paralysis.* A child is feverish, perhaps very ill. One or two limbs seem powerless; the child is restless, in pain, and cries if touched. Perhaps some weeks later he is brought to a hospital and there given "massage and electricity" for a few weeks, or, if the child lives within out-patient reach, for months or years. Much recovery may occur even with this late and ineffective treatment, but the number of children needlessly crippled by preventable paralysis is very great. The profession as a whole has by no means yet realised the principle of ganglion cell rest as an urgent measure in the first stages of this disease, whether the onset of paralysis is associated with a feverish illness or not.

By the immediate immobilisation of the head, spine, and affected limbs, with correct posture[1] and undisturbed skin protection, the inflamed or poisoned cells are given the functional rest they need and cannot otherwise get. We know that even without that rest much recovery takes place (quickly or slowly); it is then reasonable to assume, as, indeed, Mackenzie's cases tend to prove, that with proper spinal and neuro-muscular rest the recovery will be quicker, more extensive, and more often complete.

[1] William Mackenzie: The Treatment of Infantile Paralysis, Melbourne, 1910; Robert Jones, THE LANCET, May 30th, 1914.

A *congenital deformity* is, of course, not quite so urgent a matter, but, none the less, the ultimate result is far better and can be obtained more quickly, with less disturbance and less pain, if the defect is treated as soon as it can be detected.

Scoliosis and other deformities which develop insidiously are also at first treated easily, later with difficulty or with only partial success.

In every branch of the work early treatment tends to prevent crippledom, to forestall illness and suffering, and to eliminate the need for operation.

It has been stated that some cripples never get efficient treatment at all. How is this? It is due to lack of suitable provision for their needs, for the work cannot be done on an adequate scale by the general hospitals. The cases are slow and tedious; they need a country hospital with open-air wards, splint and appliance workshops, educational facilities, and so on. Means must be available to ensure the accurate fit and comfort of a splint, frame, plaster, or appliance, and workshops where these various needs can be supplied quickly for each case, to the exact specification and under the superintendence of the surgeon, are of the very greatest advantage. General education and handicraft training are required for these children while in hospital, for otherwise many have no teaching for very long periods, and thus have an educational as well as a physical handicap. The joint consideration and proper coördination of treatment and education is very important.[2]

Again, in these cases there is no natural convalescence. Operations, manipulations, and even prolonged retention in hospital do not finish the treatment. Without thorough after-care deformities will inevitably recur, club-feet, though over-corrected, will relapse, posture, gravity, and uneven muscle-balance will cause deformity in cases of infantile paralysis, and tuberculous hips will insidiously change abduction into adduction.

To sum up, failure is due to want of (1) early treatment; (2) efficient treatment in suitably sited, equipped, and staffed hospitals; (3) thorough after-care.

A Proposed Scheme.

Outlines of a proposed national system to meet these needs have been worked out by the Central Committee for the Care of Cripples as follows:—

I. A central coördinating body which should work with the Ministry of Health and the Board of Education.

II. Local committees for the care of cripples in every district.

III. Hospital schools. The provision in England and Wales of an adequate number of hospital schools for crippled children with open-air wards.

IV. Each hospital school should be run under its own local committee, with its own teaching staff and handicraft workshops. Working in direct union with the hospital school should be:—

(*a*) Out-patient clinics for—(1) The examination of children sent up for consultation; (2) the treatment of cases which can be effectively treated as out-patients; (3) the after-treatment and supervision of children discharged from the hospital school; (4) the maintenance of touch with old patients so that advice and help may be given as to suitable employment.

(*b*) Invalid schools, day and residential, for the minority of children who have not been cured or benefited sufficiently to enable them to attend ordinary classes. In large towns special day schools will fill the need; but for children in other districts, who are prevented from receiving education by their persisting disability, residential schools are necessary. For the sake of simplicity and economy these should be part of the establishment of the hospital school, but in a separate wing. These children would be drafted into this when fit to leave the hospital, but would continue to benefit from the teaching, handicraft shop, and surgical supervision.

V. It is vital that those responsible for the treatment should be experienced in orthopædic work. This applies both to the surgical staff and the hospital and after-treatment sisters.

VI. There should be provision for paying patients.

VII. Wards should be available for adolescent and adult cripples and persons suffering from injuries needing orthopædic treatment.

VIII. Where efficient organisations for crippled children exist these would be welcomed in the scheme which should be sufficiently elastic to cover some diversity of method.

[2] The Care of Cripple Children. Brit. Med. Jour., May 22nd, 1920.

The essential principles of the proposed scheme are those already stated, and aim at treatment, very early, very efficient, and very complete.

The suggested hospital and clinic organisation is developed from an existing unit which has been doing this work in a county area for a good many years. There the organisation was gradually developed to meet the difficulties already mentioned, the tragedy of children coming into hospital with established disease, deformity, and paralysis, and of others readmitted with relapse owing to the impossibility of keeping touch with all discharged cases, of whom many live at considerable distance.

Hospitals for Cripple Children.

The essence of the system is the establishment of hospitals for all types of cripple children to serve a more or less definite district—say, one, two, or three counties; hospitals which should accept responsibility for every cripple right through the district, organise team-work, and enlist in the team every doctor and every health worker. Success depends on a true spirit of coöperation.

Scattered orthopædic clinics.—The working of scattered orthopædic clinics is described in a leaflet used in connexion with the organisation of clinics in another district.

After describing the work of the children's section of the hospital in the treatment of all types of crippled children this leaflet goes on to say:—

"But, if the hospital is to do its work well, it must achieve not only early treatment but also thorough after-care. Everyone is familiar with patients who have suffered from one or other of these conditions, have had a period of hospital treatment, have apparently been put right, but two years later have been just where they were before, solely as a result of deficient after-care. The very great majority of children are able to become out-patients while still in plaster-of-Paris or wearing appliances. The renewal of the former, and the upkeep, readjustment, and replacement of the latter mean constant work, and at the same time careful watch must be kept for any sign of relapse. This work must fall to the lot of the hospital staff who have carried out the active treatment, and have the enormous advantage of a workshop where any repair, alteration, or renewal of appliance or boot may be done quickly and to the exact requirements of the surgeon.

It was for this after-care, which has to be kept up for years, that the local orthopædic clinics were started in connexion with the Shropshire Orthopædic Hospital, for it was found quite impossible to bring all the old cases up to the hospital frequently. Their practical value was quickly and abundantly proved. Here a number are already working, and it is proposed to set them up throughout the area served by the hospital—i.e., principally Berks, Bucks, and Oxon.

In starting a clinic a suitable centre, generally a market town, is chosen, the county medical officer of health and the local doctors are consulted, so that, if possible, it may be held in the cottage hospital or in rooms which are used for infant welfare or other health purposes. Representatives of the B.R.C.S., Infant Welfare, Nursing Federation, or other voluntary associations are asked to form a local committee to run the clinic, help in its work, contribute to the expenses, and act as almoners. This committee might well become a branch of the Invalid Children's Aid Association. Sisters specially trained in orthopædic work visit the clinics, which are held every week or every fortnight, according to the need. They see the children coming from the surrounding district and patch or renew their plasters, make sure that their appliances and boots are effective, and so on. These after-care sisters live at, or near, the hospital, and follow closely the treatment of any cases from their districts which are in the hospital, so that there may be no break in continuity of purpose. The sisters never initiate treatment, their work is to carry out the treatment ordered by the surgeon. The latter visits the clinics to see all the cases once every eight weeks, and makes a special additional visit when necessary. Children who are not actually sent up by their doctor are referred to him before their treatment is commenced. A list of the regular visits of the surgeon is sent to the doctors in the locality, who are thus brought into touch with the work of the hospital, and can readily refer cases for treatment or consideration. They can keep in touch with a patient right through, for they are always very welcome at the clinics or the hospital.

This coöperation is really an extension of team-work, and means much to all concerned. To the hospital it means the possibility of early treatment and thorough after-care; to the doctors it is helpful in that, otherwise, the management of cases requiring much plaster work, all sorts

of apparatus, special boots, &c., is difficult and troublesome; to public health representatives it is valuable, as the work concerns, mainly, children for whose treatment they are responsible."

This system has proved completely successful. Cases are now sent to the local clinics or the hospital in the early stages; this change is progressive, as the parents, doctors, school medical officers, nurses, health visitors, &c., realise more and more fully what is being done for the various conditions and the importance of losing no time; and the after-treatment is carried on till all danger of relapse is past.

To the doctors the clinics are a great help. The cases treated need plasters and appliances often for very long periods, and these require constant care, alteration, or renewal, work practicable when one is always at it and there are hospital workshops at one's elbow, but in private practice or for a general surgeon almost impossible. Perhaps the commonest cases attending the clinics are those of past acute poliomyelitis with resultant paralyses and deformities. In a young child there are years of treatment by plaster and appliances ahead: first, the correction of deformities and the prolonged postural treatment of the muscles; then the consideration as to further measures to restore lost muscle function, or to stabilise joints. And often there is a time of waiting until the child reaches an age when an operation which is required can best be carried out. It is, for example, disadvantageous to do an arthrodesis until the subject is about 8 or 10 years old. Sir Robert Jones has said: "There is plenty to be done during the waiting, and if this be done well perhaps no operation will be needed."[3] Even long-neglected cases of this disease often show astonishing improvement when paralysed muscles are treated by constant relaxation for long periods with simple re-education.

All this work is difficult and tedious and hardly practicable except by means of local clinics. They are really extensions of the hospital out-patient department, and serve to bring the hospital within easy reach of the parents and the doctor. A frequent long journey with a cripple child is quite impracticable for most working-class parents who have a house and perhaps other children to look after. Unless a clinic is available within a reasonable distance of their home they sooner or later fail to bring the child up for treatment or supervision.

Early ascertainment.—A deformity or the warning sign of a crippling disease may be noticed first by a doctor, a midwife, a school medical officer, or infant-welfare worker. It is evident (1) that all these people must appreciate the importance of immediate action; (2) that ready means of getting the cases to hospital or clinic quickly must exist. It is only by the actual intercourse between hospital staff and primary health workers affected by the district-working hospital and its clinics that the necessary knowledge is attained and facilities for prompt diagnosis and treatment provided.

The problem in big cities.—In London and other big cities the problem is analogous, and can be solved in the same way. Instead of one central hospital school there might well be institutions of similar type in the country attached to orthopædic hospitals or orthopædic departments of general hospitals. Instead of a large rural district with a population a quarter or half a million, a district of the town of somewhat similar population might be assigned to each unit. The hospital would be responsible for working its district on lines which would ensure early ascertainment, continuity of treatment, and thorough after-care.

Finance.

Establishment of hospitals.—Total new construction will often be avoidable. Many suitable or adaptable hospitals exist, either already devoted to work of this type, old military hospitals, or those still in use by the Ministry of Pensions. Where new building is necessary it should be of a simple type, and have the twin virtues of low establishment and low maintenance costs. Such a hospital has been described elsewhere.[4] It should be of semi-permanent construction, for even so it may outlast its author's generation, and eventually be considered quite out of date and ineffective. Establishment grants from the Ministry of Health are available for the proportion of beds devoted to non-pulmonary tuberculosis.

Maintenance.—If the hospital school is "approved" by the Board of Education and by the Ministry of Health the maintenance costs can be claimed from the local authorities responsible for each case, provided they authorise the admission. The authorities can collect what is fair from the parents, and can demand from the Ministry of Health and the Board of Education 50 per cent. of their own expenditure. The average weekly hospital expenses can be divided by the number of in-patient children. The sum thus arrived at can be charged to the authorities; the charges for cases coming under the education authorities must first be approved by the Board of Education.

The responsible authorities are: (1) For all tuberculous cases and for all children under school age, the local public health authority; (2) for children of school age (non-tuberculous), the local education authority.

Conclusions.

1. There are a great many cripple children in this country and a still larger number of adults whose crippledom dates from childhood.

2. Most of these cases need not have been permanently crippled if they had been given adequate treatment at an early stage of their disability.

3. Of cripple children, about one-third suffer from non-pulmonary tuberculosis, and about two-thirds from other crippling conditions.

4. The need for the adequate provision of treatment for these disabilities is very great; it has been recognised and provided for by legislation.

5. Unless a coördinated and comprehensive policy is adopted there will be a muddle—in some places a good scheme, in others a bad one, in others, again, for a long time none at all.

6. For the treatment truly to meet the need it must be (*a*) very early, and so largely preventive; (*b*) efficient in suitably sited, equipped, and staffed hospitals; (*c*) completed by thorough after-care.

7. Very early treatment and thorough after-care can only be achieved by a hospital centred in a "district," and responsible for working that district by coöperation with other health workers.

8. Every area in the country must be served by a hospital for cripple children.

9. The special hospital conditions necessary for the various types of crippling disease, paralysis, or deformity are almost identical. A hospital satisfying the needs of the tuberculous cripple will provide all that the others require. The "local clinic" organisation is needed for all types.

10. In certain places hospitals for all varieties of cripple children already exist. Several already have a local clinic system; in others it is as yet undeveloped. In one district, where the organisation has been working for some years, the results have been most satisfactory.

11. In any district where there is a hospital for non-pulmonary tuberculous cases, and no provision for other types, that institution should enlarge its scope. To set up a separate hospital and clinic organisation for the non-tuberculous cripples would be foolish and extravagant; to leave them without provision a great deal worse.

12. The hospital which exists to deal with cases sent from a distance, with arthritis deformity or paralysis established, will become a thing of the past. Such hospitals have done magnificent work, and have been the honoured teachers of us all; but the treatment of crippling disabilities is becoming more and more of a preventive nature.

13. The establishment of this system of treatment means to substitute early and thorough treatment for what has hitherto been tardy, difficult, costly, and incomplete.

14. The expense will now be definitely associated with this treatment instead of hidden in a mass of other work, but it will be justified on economic grounds alone; many who would otherwise be sources of loss will thus become earners and producers.

[3] Brit. Med. Jour., Dec. 9th, 1911.
[4] The Care of Cripple Children, Brit. Med. Jour., May 22nd, 1920.

OSTEITIS DEFORMANS?

BY FRANK ROMER, M.R.C.S. ENG., L.R.C.P. LOND.

With Observations by SIR W. ARBUTHNOT LANE.

IN the very clear and full description of osteitis deformans given by Sir James Paget, based on his observations of many cases, two points stand out—namely, the subsequent affection of the skull and other long bones and the comparative freedom from pain. I have had the opportunity of closely observing in the last four years the progress of an osteitis affecting the tibia, which from its likeness to Paget's disease caused many of us to regard it as such. Lately, I have come across cases showing deviations similar to the classical description of Paget's disease, which have caused me to wonder if there are not two distinct types of this condition.

Symptoms often differ in many well-known diseases without affecting the diagnosis, and I am writing this paper in the hope that other observers may have come across cases which, while resembling Paget's disease in certain particulars, show similar differences to the cases I propose to describe. The operative treatment, undertaken at my request, will be detailed by Sir W. Arbuthnot Lane; not only did it give instant relief to the pain, but was followed by the formation of healthy bone.

Three Cases Described.

The first case was that of a healthy man, 44 years of age. In June, 1915, he was descending a ship side in a rough sea by means of a Jacob's ladder. The drop was deeper than anticipated, and in landing he struck his right tibia on the gunwale of the boat. The pain at the time was exasperatingly severe, but passed off shortly; the shin, however, remained painful to the touch for about a month. In October a slight enlargement of the tibia became noticeable, together with a sensation of itching, unrelieved by scratching, as it appeared to be in the bone itself. The sensation of itching drew the attention of the patient to the small enlargement. A radiograph showed a small patch of osteitis. The patient had never suffered from syphilis, and subsequent blood-tests eliminated this as a possible factor. The patient ignored the condition till December, 1917, when the steady increase of pain and ensuing lameness, combined with the obvious enlargement of the upper end of the tibia, caused him to ask his colleague at Millbank Hospital, the late Dr. Cecil Lyster, to radiograph the limb. The radiograph showed the whole upper third of the tibia to be affected by an osteitis. By the advice of Dr. Lyster iodide ionisation was tried, but with no result.

Œdema was present over that portion of the tibia affected by disease. The pain varied from a dull ache to acute lancinating pains, running down the shaft of the bone. Exercise and such things as the vibration caused by railway trains or a motor-car increased the pain, which, like all bone pains, was invariably worse at night. To be roused at night by cramp in the calf of the affected limb was of constant occurrence and after the muscular spasm had passed off the bone would ache for hours. Pressure or light tapping during examination of the leg invariably set it aching. Rest might possibly have given relief, but the patient was attached to various military hospitals necessitating daily travelling, so was unable to lie up.

As the pain and lameness were affecting the patient's well-being it was decided to try the effect of an operation. This was done in February, 1918, and by the end of March the patient was about on crutches attending the surgical gymnasium at Millbank for special exercises. At the end of a month's sick-leave all pain had gone and he could walk without difficulty. In May he returned to duty and continued free from pain till the end of July. Towards the middle of that month the sensation of itching had returned in the middle third of the tibia and pain gradually took its place. A radiograph was taken and it was seen that the area of operation was filling up with healthy cancellar bone; the middle third, however, was showing signs of further osteitis. The pain and subsequent disability became so troublesome that the patient applied for a board and was invalided from the Service. Since the first operation had proved so successful it was decided to clear out the diseased portion in the middle third, and this was done in January, 1919. The subsequent history was much as after the first operation, and a radiograph shows healthy bone replacing the diseased area.

There has since been a return of pain in the lower third, but no definite osteitis can be detected at present. The patient gets about on a crutch stick, and, provided no undue strain or use is given the leg, suffers but little, and then only in the lower third. It is hoped that in the course of a few months' comparative rest he will be able to get about normally; but should the disease show definite signs in the lower third he will unhesitatingly have a further operation. Radiographs of the skull and other bones show no signs of disease. Cultures were made from the debris and found sterile, whilst microscopical examination merely showed the normal abnormalities of osteitis.

In another case, that of a lady, there is a definite history of trauma in which she struck her shin against the edge of a punt some 20 years ago. Within a few months enlargement of the upper end of the tibia was noticed, and the patient complained of severe pain. Radiographs taken at this time are singularly like those in the first case. The patient complains of cramp at night, and any attempt at walking causes so much pain that she scarcely attempts to get about. The tibia is now very thickened and bowed. No other bones have been affected. Operative treatment has been advised.

In a third case enlargement of the right side of the lower jaw followed a blow. The osteitis was limited to that portion of the lower jaw, and no other bones appeared to be affected.

Discussion.

The question arises whether these cases are merely a variation of Paget's disease or whether they are entirely distinct. In all three cases the cause was definitely traumatic in origin, whilst in true Paget's the origin is obscure and injury not mentioned as a factor. In the first two cases a period of 5 and 20 years respectively have elapsed and no other bones have become involved. This is distinctly against the normal course of osteitis deformans. Pain, which is practically negligible in the cases described by Paget, in all three cases under discussion has been severe. In fact, were it not for the pain the enlargement of the bone would cause no inconvenience.

The value of operatic interference has been so manifest, followed as it was by freedom from pain and growth of healthy bone, that one wonders whether similar operations would arrest the progress of the more ordinary type of osteitis deformans.

Observations by Sir W. ARBUTHNOT LANE.

At the first operation the inner wall of the tibia was removed along the upper two-thirds of its length. The structure of the tissue removed did not differ in any way from that with which one is familiar in osteitis deformans. On the second occasion a similar operation was performed upon the lower third of the shaft of the tibia.

I have seen several cases practically identical with this, in which in most cases the tibia, but occasionally some other bone, has taken on this condition, the adjacent bones being only affected when the changes in the ends of the diseased bone necessitated corresponding mechanical alterations in the bones with which they are articulated. Most of the discomfort or pain is due to the implication of the joints in the infective process. They all gave a history of a traumatic origin.

I see no reason to call the condition osteitis deformans since its clinical history is quite distinct.

Reviews and Notices of Books.

A CONSULTING SURGEON IN THE NEAR EAST.

By A. H. TUBBY, C.B., C.M.G., F.R.C.S. Eng. London: Christophers. 1920. Pp. 279. 15*s*.

IN 1915 the Army Medical Department decided on the appointment of consulting medical officers to serve with the A.M.S., and Mr. Tubby was one of the surgeons to whom this important post was offered. He received the offer on June 12th, 1915, and on June 20th was on his way to Egypt via Malta, where two of his colleagues were to be landed. Mr. Tubby had a wide experience; he served first in Alexandria, then at Imbros, Mudros, and the Gallipoli peninsula, then in Egypt again as consulting surgeon at Cairo; he was then sent back to Alexandria, visited Khartoum, and finally went to Palestine. In all these spheres he did varied and valuable work, and the book before us is a modest and unassuming record not only of his own labours, but incidentally of those of others. Like many another account of medical matters during the war the feature which strikes us most is the extraordinary powers of organisation and forethought which must be attributed to Sir Alfred Keogh, the Director-General, though it must not be forgotten that he was often served by excellent subordinates.

Mr. Tubby's account of the Gallipoli campaign is sad reading in so far as regards the sufferings of the troops, but it fills the reader with pride in his nationality. The camp at Cape Helles was anything but sanitary, despite all efforts to keep it so, and dust, flies, and lice—especially the last—tried the troops severely. Mr. Tubby quotes the simple remark of a captain, "Here am I, Lord —— and ——, with one hundred and fifty thousand a year and —— lousy." After the heat, the cold. In November, 1915, a sudden storm of rain at Gallipoli was succeeded by two nights' severe frost, and many cases of frost-bite occurred, some leading to amputation, especially amongst the Ghurkas. Possibly the most interesting part of Mr. Tubby's book is that dealing with the Palestine campaign—not that he ventures upon military details, but he gives various little touches which are very real. Thus he describes how when the railway from Egypt into Palestine was being made, the old road—the road that goes back to the ancient Kings of Egypt—was still employed. Progress was naturally slow and toilsome. Some unrecorded genius proposed laying down ordinary wire-netting on the sand to make a track, and this not only made marching easy, but afforded an excellent roadway for motors. The chapter called "The Consulting Surgeon in War" contains much valuable information and suggestion, and altogether the book is well worth reading.

INTESTINAL AUTO-INTOXICATION.

Contribución al Estudio de la Auto-intoxicación Intestinal. By C. J. DIAZ, Professor of Clinical Medicine, University of Madrid. Madrid: Hermanos Ruiz. 1920. Pp. 144. 3.50 ptas.

THIS is a concise and excellent little work of its kind and, coming from the pen of a distinguished author, will be perused with the attention and interest it well deserves. It is partly a compilation from, and commentary upon, the researches of other workers in the field of intestinal auto-intoxication, and partly an exposition of the writer's own views and experience of the subject, which are supported by clinical notes of nine cases under his observation. A large amount of contemporary literature is introduced, with comments, especially that of Lane, Hurst, Herter, Cammidge, Wells, Mellanby, and others in this country, and Combe, Schmidt, and Strasburger on the continent. The author criticises the methods of research into the mechanism, physiological and pathological, of fermentation and putrefaction, the action of toxic products formed in abnormal intestinal processes, and the absorption of lipoids. He considers that there are two factors to be taken into account in elucidating the problems of intestinal auto-intoxication, the one corresponding to the chemical substances generated, the other following physical factors, and that the means which are at our disposal for coprological chemical analysis are sufficient to give a good general guide as to the processes which take place. The intestinal flora is as yet little understood, and the functions of certain micro-organisms are twofold, which detracts from the value of methods which rest exclusively on their identification. The author agrees with Oshima that the presence of dissolved albumin in the stools indicates lesion of the mucosa, and that intestinal putrefaction may occur without albumin in the dejecta, and he admits the existence of a dyspepsia, or rather a dystrypsia, from putrefaction in opposition to the "fermentative" of Schmidt and Strasburger. He considers that the fatty acids when absorbed are capable of producing symptoms of themselves, and not through withdrawal of alkali, and that, with the exception of indican, the exact quantity of sulpho-ethers in the urine has no significance. He conceives a "proteinæmic diathesis" which takes the place of the classical arthritism, and explains the transient hypertensions of the constipated by distension of the colon. There are several misprints, which do not, however, detract from the value of the book, such as animo-acids for amino-acids; this occurs several times.

A NATURALIST ON LAKE VICTORIA.

With an Account of Sleeping Sickness and the Tsetse-fly. By G. D. HALE CARPENTER, D.M., B.Ch., Uganda Medical Service. London: T. Fisher Unwin. 1920. With 2 coloured plates, a map, charts, and 87 illustrations. Pp. 332. 28*s*.

IN 1910 Dr. Hale Carpenter went to the north shore of Victoria Nyanja (not Nyanza as it is usually written; the author states that Nyanza "means nothing"). His object was to investigate the bionomics of the tsetse-fly, *Glossina palpalis*. The book is an attempt, and we think a successful and interesting attempt, to give an account of the life on the islands of the Victoria Nyanja, and of that group of islands lying at the north-west of the lake just south of the Equator. The author is primarily an entomologist, so that the chief interest centres round his observations in regard to insects. There are extensive observations on coloration of insects, illustrated by two coloured plates of model species of Planema with mimetic forms of *Pseudacræa eurytus*. The chapters on mammals, birds, and reptiles are confessedly not so ample. In the short space of not quite three years the author accumulated a wonderful body of observations of island life, and as Professor Poulton remarks, the observations recorded "are both loving and accurate." Apart from the earlier chapters on the Natural History of Sleeping Sickness, the most important, according to Professor Poulton, are those which add to our knowledge of *Papilio dardanus*, and the breeding experiments which brought final confirmation to the conclusions that the wonderful series of mimetic butterflies are forms of a single species—*Pseudacræa eurytus*. It appears that the African butterflies include what are probably the two most remarkable examples of mimicry in the world—*Papilio dardanus* and *Ps. eurytus*. To the purely medical reader the chapters which tell the story of sleeping sickness in tropical Africa will be the most attractive. The author concludes that in order to exterminate sleeping sickness the animals must be kept from each other—the Situtunga antelope from which the fly obtains the trypanosome, and the fly which inoculates the Situtunga with the trypanosome. To the naturalist proper the careful and many new observations on the coloration of insects and allied subjects and the discussion on mimicry will perhaps prove the most attractive part of the book; nor must the entrancing account of the doings of the totally blind reddish ant, the Dorylus or "Safari Ant," that lives entirely by hunting live prey, be forgotten.

Altogether, Dr. Carpenter's sojourn on the islands of Lake Victoria has yielded interesting results for the naturalist, and his written record of his work, his voyages by canoe, and descriptions of the scenery make the printed account pleasant as well as profitable reading, even to one not deeply versed in zoological lore.

DIABETES IN INDIA.

Being a Collection of Reprints from the *Indian Journal of Medical Research*. By D. MCCAY, Major, I.M.S., Professor of Physiology, Medical College, Calcutta, and Others.

THE prevalence of diabetes mellitus in India is well known and presents a vast problem, which will require many years of detailed work before a solution is reached. The Imperial Indian Research Fund has wisely devoted funds for the purposes of the investigations recorded in the papers, and the authors of this contribution are to be congratulated on the results of the expenditure of much time and labour. A large number of interesting facts have been revealed. The first paper deals with the sugar in the blood and urine in the Bengali. The sugar in the blood of the normal Bengali is found to be 0·13 per cent., a much higher figure than that obtained in the normal average European, and largely explained by differences in the carbohydrate content of the diet in the two races. This excess of sugar in the blood leads to the deposition of fat, and eventually to glycosuria. The sugar tolerance of such individuals becomes lower and lower as the percentage of sugar in the blood increases and with the rising body-weight. Each individual, however, possesses certain narrow limits within which his blood-sugar concentration varies, as also the concentration of blood-sugar at which the kidneys begin to excrete sugar in abnormal amounts. It was found in examination of the urine of the Bengali that the well-known tests often gave indefinite results, and this was especially true of Fehling's test. This is not surprising when quantitative estimations reveal the normal variations of sugar in the urine as between 0·015 and 0·15 per cent. Further, there was no parallelism between the sugar in the blood and that in the urine in people of normal health, in those suffering from a-glycosuric diabetes, in different individuals suffering from varying degrees of glycosuria, or even in the same individual. The authors are of the opinion that the predisposing cause of glycosuria is a gastro-duodenitis leading to an exhaustion or actual inflammation of the pancreas and a disturbance in the internal secretion of that organ. The march of events leading to glycosuria as conceived by Major McCay is given in tabular form, and expresses very clearly his main conclusions.

The most interesting paper in the whole series relates to the causation of death in diabetes mellitus as met with in India. There is no evidence of actual ketosis, and the onset of diabetic coma (air-hunger) as met with in England. On the contrary, the patients almost invariably die of uræmic coma. This uræmic coma is the result of the functional derangement of the kidneys brought about by the continued passage of large quantities of sugar over a prolonged period. The onset of this type of coma is not necessarily dependent upon a definite pathological lesion of the kidneys. The whole of this work is unfortunately lacking in complete proof owing to the absence of post-mortem records—an insurmountable difficulty in the present social and caste conditions in India. However, numerous analyses of the blood are given to support this important conclusion. The last paper deals very thoroughly with the treatment of diabetes in India. One is struck with the ease in which a mere restricted dietary removes the glycosuria even in severe cases. This is partly explained by the fact that diabetes mellitus in India is of a mild type, and differs from the severe form as met with in England, where death is due to true diabetic coma. Again, reduction of the carbohydrate in the diet does not lead to ketosis, and diacetic acid is rarely found. As early as 1913 the plan of inducing a raised glucose tolerance by gradually increasing the carbohydrates was adopted. This in essentials was the same plan of treatment as that devised by F. M. Allen, and worked out quite independently by McCay. The difference was that starvation as advocated by Allen was not ordered, simply because it was quite unnecessary in the treatment of the mild type of case met with in India. The observations recorded in these papers are of great interest, and the authors are to be congratulated on an excellent piece of work. That difficulties were overcome and such good results obtained reflects great credit on Major McCay and his stimulating influence on those working in his laboratory.

CHILDREN'S DREAMS.

By C. W. KIMMINS, M.A., D.Sc. London: Longmans Green, and Co. 1920. Pp. 126. 5*s*.

As Dr. Kimmins points out, little attention has been paid to the dreams of normal people since the psycho-analysts first applied their methods to this subject. Freud's *Traumdeutung* is based mainly on the dreams of his psycho-neurotic patients; and the gradually recognised importance of the study of dreams during the past six years has been due to their value in the exploration of the minds of those suffering from the psychoneuroses of war. In Dr. Kimmins's book we have a collection of dreams obtained from nearly six thousand children of various ages (from 5 to 16), in elementary, central, and secondary schools, in industrial schools, and in schools for the blind and deaf. The conclusions drawn from this important and fascinating study throw a vivid light on the inner lives of children (e.g., the elder girls' fear of strange people), on their waking desires as fulfilled in dreams (children in industrial schools have more idealistic and exciting dreams than children whose lives are more fortunate), and on the changes in the dream content with differences in age and sex, and with deafness and blindness. The dreams of the children of eight years of age and over were recorded by themselves, and it is interesting to note that their power of graphic description of their dreams "so far exceeds their ability in ordinary essay writing on topics selected by the teacher ..... that it would appear as if some fresh mental element had come into play." The matter is, as Dr. Kimmins observes, worthy of further investigation.

DIRECTIONS FOR A PRACTICAL COURSE IN CHEMICAL PHYSIOLOGY.

Fourth edition. By W. CRAMER. London: Longmans, Green, and Co. 1920. Pp. 138. 4*s*. 6*d*.

THIS excellent and concise handbook has now reached its fourth edition—a sufficient recommendation of utility. The book is small and its scope is necessarily limited, but it embodies most of the recognised tests in general use, as also the practical demonstrations, and it is specially designed for medical students possessing only an elementary knowledge of organic chemistry. The tests for various substances in the blood, gastric contents, urine, &c., are clearly set out, and particular attention is given to the small technical details which are so essential for the successful application of such tests. A pleasing feature of the book is the array of questions which accompany certain tests, as also the excellent notes pointing out the fallacies of the tests. The author is to be congratulated on the demonstration of coagulation of the blood, the description of which is clearly and concisely put. The student is given a clear insight into the phenomena of coagulation without the use of a cumbersome and meaningless terminology.

The importance of the maintenance of acid and base equilibrium in the body is also dealt with in a separate chapter at the end of the book, and a difficult subject is made quite clear by the presentation of several tests and demonstrations. The book should appeal to the general practitioner, especially that part dealing with pathological metabolism. The tests described can be carried out without the necessity of elaborate apparatus or a well-equipped laboratory. The description of acetone bodies in the urine and the tests for their presence is well done and in accord with modern views. The author introduces his own test for the detection of sugar in normal urine, but omits all mention of Benedict's test, which is far superior to some of those described, and should be used in preference to that of Fehling. The book is of small size, and from its undoubted excellence, apart from its price, is to be recommended as a laboratory manual.

MEDICAL EXAMINATION OF AIRMEN.

By DR. MAUBLANC and DR. RATIÉ. Translated by NORMAN BALL, M.R.C.S., L.R.C.P. London: John Bale, Sons, and Danielsson, Ltd. 1920. Pp. 88. 5*s*.

THIS little book in its original form was intended as a practical guide for use in the examination of members of the French Air Service and its recruits. Wing Commander Martin Flack contributes an introduction to the English translation without discussing French methods at any length. The authors state that their methods were applied in systematic fashion to every recruit as well as to pilots who arrived from other sections and to applicants for rest-leave, but it is, unfortunately, not very easy to glean from the text complete details of this systematic examination. They express the hope that the book will help the practitioner who may, without previous experience, suddenly be called upon to act as doctor to a flying squadron. In England, at any rate, such a condition is not likely to occur now that systematic courses of instruction and lectures are given to all medical officers charged with the care of flying personnel. The book, indeed, gives the impression of having been compiled during the stress of war and to take little notice of contemporary work on medical aviation. No doubt the authors have themselves moved forward since then in their methods and practice, and we should like to see any set of forms now in use for the examination of pilots in flying, together with proper statistical tables of the results.

Dealing with the physical examination of candidates, the authors advocate the anthropometric factor of Bouchard and do not mention the work of Professor Georges Dreyer. They follow the physical measurement of a candidate with an inquiry into his family history, and apparently recommend that if this is unsatisfactory on account of epilepsy, madness, paralysis, or tabes he should be rejected. It seems a waste of time to go to the trouble of taking physical measurements if the applicant is to be rejected on other grounds. The methods of examination of the heart are not described, and reference is made to instruments unfamiliar to the practitioner in this country. Here some explanatory notes with diagrams and instructions would have been useful. The all-too-short description of a special apparatus for measuring equilibrium is of interest. With these provisos the book is one that can be recommended to English readers for its conspectus of air medicine in France.

ADVANCED LESSONS IN PRACTICAL PHYSIOLOGY.

For Students of Medicine. By RUSSELL BURTON-OPITZ, S.M., M.D., Ph.D., Associate Professor of Physiology, Columbia University. Illustrated. London and Philadelphia: W. B. Saunders Company. 1920. Pp. 238. 18*s*.

THIS excellent guide to experimental physiology is essentially on the plan of teaching practised in English schools of medicine. It is made up of 50 lessons, each for a practical class lasting three hours; 9 lessons are allotted to muscle and nerve, 3 to blood, 13 to heart and circulation, 6 to respiration, 4 to nervous system, 7 to the sense organs, 5 to digestion and absorption, and 3 to excretion—a very judicious and well-balanced distribution. The subject is presented in a practical manner—practical in the sense that many of the exercises lead up directly to the future clinical work of the student. Obviously in American schools of medicine the conditions under which a student is allowed to perform experiments—blood pressure, sections of nerves, fistulæ, tracheotomy, ligature of vessels, &c., under proper anæsthetic safeguards—are far different from those allowed in this country. In the higher grade medical schools in the United States about 300 hours are allotted to physiology—exclusive of physiologic chemistry and clinical physiology or experimental medicine—about 180 hours being assigned to practical work and 120 to lectures and conferences. Each student must devote 10 hours per week to physiology in an academic session of 30 weeks. At the end of the book a list is appended of over 30 demonstrations given in connexion with the preceding lessons. These include demonstrations on Pflüger's law, electrical phenomena of muscle and nerve, galvanometers, electro-cardiography, polygraph, decerebrate pigeon and cat, lesions of cerebellum, semicircular canals, removal of thyroid, parathyroid, and suprarenal glands, &c. The text is illustrated with 213 figures, some in colour. Perhaps Zöllner, the astronomer of Leipzig, would have preferred his name printed with umlaut instead of as on pp. 204 and 238. Any student who works carefully on the lines here laid down will find that he has acquired an admirable training for his future clinical work, and indeed for other subsequent subjects of his medical career. This is a comprehensive, judicious, well-selected and admirably practical course on experimental physiology—a meet companion to the author's text-book (THE LANCET, July 24th, 1920, p. 190).

THE PSYCHOLOGY OF PHANTASY.

Collected Papers. By CONSTANCE E. LONG. London: Baillière, Tindall, and Cox. 1920. Pp. 216. 10*s*. 6*d*.

THIS book consists of a number of papers written by Dr. Constance Long during the past four years, some of which have already appeared in various journals. Dr. Long is one of the leading exponents in this country of that "Analytical Psychology" which is associated with the name of Dr. C. G. Jung, of Zurich, and in these papers she expounds in an elementary and popular way some of the main tenets of the school to which she adheres. Here, as in the school of Freud, great importance is ascribed to phantasy and dream, but each school puts its own interpretation on the real significance of these products of unconscious functioning. Dr. Long lays stress on the compensatory function of the unconscious and of the prospective or teleological character of the unconscious thoughts and feelings which emerge in dreams and phantasies. The balancing or compensatory function of the unconscious implies that what is missing in the conscious will be found in the unconscious, and that for the purpose of adaptation to life both the conscious and the unconscious attitude towards any given situation should be taken into account. Indeed, it would seem that Jung and his followers are coming to lay more and more stress on the importance of the guidance in the actual conduct of life which can be obtained from dreams and other products of the unconscious. Dr. Long says that Jung, like Freud, attributes neurosis to repression, though he does not base its whole ætiology on sexual repression, but on a one-sided development of the various psychological functions of thinking, feeling, sensation, and intuition. Whatever is repressed or under-expressed links itself up with unconscious elements, and from the psychic tension produced between what is conscious and what is unconscious, the phantasies arise, representing in symbolic form what is missing from conscious consideration. But, according to this view, what is missing from consciousness seems to be missing mainly because it is "neglected." Neglect, however, is a very different thing from repression. The predominating psychological function is said to be over-developed, the other functions being "relatively repressed," but it is hard to find any justification for using the term "repression" to account for the presence in the unconscious of the relatively undeveloped or undifferentiated function.

In a book of this kind, consisting of a number of separate papers, it is inevitable that there should be a considerable amount of repetition, but for those to whom the subject is new this will be no drawback. The topics dealt with are by no means easy of comprehension, and there is much to be said about them that could not readily find a place in these papers. Those readers who accept the doctrines of Freud will find little in this book to coincide with their beliefs, but for the followers of Jung it will prove a useful and interesting compendium of the views to which they subscribe.

GEORGE MILLER STERNBERG.

A Biography. By his Wife, MARTHA L. STERNBERG. Chicago: American Medical Association. 1920. Pp. 331. $5.

George Miller Sternberg was born in 1838 and died in 1915. He received his medical education at Buffalo and at the College of Physicians and Surgeons in New York City, which body gave him the degree of M.D. in 1860. He proceeded to Elizabeth City, N.J., directly afterwards, where he practised until the outbreak of the Civil War, when he was appointed assistant surgeon, U.S. Army, on May 28th, 1861. During the war he saw a good deal of service, and, amongst other experiences, was taken prisoner at the battle of Bull Run, but managed to escape. After the war he served in various places, mainly frontier posts. He had much experience of Indian fighting, and in 1875 suffered from a severe attack of yellow fever, from which, however, he recovered. He was granted six months' sick-leave and went to Europe to recruit, returning to the States in 1876. He served through the Nez Perces campaign of 1877, and in 1879 was made a member of the first Havana Yellow Fever Commission, which was the outcome of the widespread mortality from that disease during 1878. Much good work was done by the Commission, but the specific cause of the disease remained a mystery.

For the next ten years Sternberg did the bacteriological work for which he is so justly well-known, and discovered in February, 1881, the pneumococcus, which had, however, been already described by Pasteur in January of the same year. He had never lost his interest in yellow fever, and in 1887 he took up the subject again on behalf of the Government Commission which had been appointed. In 1890 he published his conclusions, which were negative. In 1900 Sternberg, who had been appointed Surgeon-General of the army in 1893, instituted the Yellow Fever Board, which in turn appointed a Commission, with Major Walter Reed as President. This Commission went to Havana in 1900, where Reed and his companions established the fact that yellow fever was transmitted by the bite of a mosquito, even though the actual causative organism remained unidenfified. In 1902 Sternberg retired from the army and was given the chair of Preventive Medicine in George Washington University, and from this date until the time of his death he devoted himself to the anti-tuberculosis campaign and matters of public health.

Mrs. Sternberg has written an interesting account of a long and busy life. Sternberg's researches are one more instance of the fact, so well known in scientific work, of how apparently unsuccessful toil leads to great results. It was his patient research in eliminating the causes to which yellow fever is *not* due, which paved the way for the immortal work of Reed, Carrol, and Lazear, and enabled Gorgas to carry to a successful conclusion the Panama Canal.

JOURNALS.

Journal of Neurology and Psychopathology. Vol. I., Nos. 2 and 3.—The second number of this new journal maintains the promise of its first. The chief article is one by Dr. R. M. Stewart, of Prestwich, on the Histopathology of Carbon Monoxide Poisoning, the case being that of a man who died from the effects of gas-poisoning on the twenty-fourth day of his illness. Histological examination revealed the presence of an intense and universal myelin degeneration, bilateral softening in the basal ganglia, and a widespread cortical softening strictly confined in a curious way to the deeper layers of the grey matter. Dr. Stewart considers that this peculiar selective action of what must certainly have been a diffuse intoxication is to be explained by certain anatomical peculiarities of the blood-vessels supplying the central nervous system. It seems clear that an anoxæmia alone could not have produced the peculiar zones of softening and that carbon monoxide must have a specific action of its own on the parenchymatous elements of the nervous system.—Dr. William Brown, of London, contributes a brief paper on Some Factors in Psychotherapy, emphasising the importance of what he calls psychocatharsis, a process by which suppressed emotions are worked off, while at the same time reassociation of forgotten incidents takes place in the mind. He also describes the working of another therapeutic process called by him autognosis, in which the patient is led backwards in memory and encouraged to discuss emotional memories of the past, especially those where he failed to adapt himself adequately to his physical and social environment.—A clinical paper on the Acute Confusional States in the Psychoneuroses is contributed by Dr. W. Johnson, of Liverpool, based on his examination of some thousands of military cases admitted to an army centre for psychoneurosis. About 10 per cent. showed definite evidence of confusion. Three fairly distinct types appeared—(1) simple type with short confusional period of not more, perhaps, than of 24 hours; (2) severe type of pronounced but temporary state of confusion; (3) type associated with definite mental disorder.—The Nature of Insomnia in Cases of Psychoneurosis is discussed by Dr. R. G. Gordon, of Bath, who comes to the conclusion that the insomnia is the result of the patient's giving his attention to keeping some unpleasant or insupportable idea out of his mind, and trying to cut it off from all other associations. This effort of attention is the first step towards the formation of a barrier which will repress the complex. Since, however, in order to achieve normal sleep all effort of attention must be relaxed, the patient finds himself in a sort of impasse, for if attention be relaxed, then the complex finds expression in consciousness and disturbs the monotony necessary for sleep; on the other hand, to avoid this relaxation of attention he becomes more alert than ever, and the more he tries to sleep the wider awake he seems to become.—Dr. M. A. Blandy, of London, describes in a brief clinical note a typical case of Torsion-spasm or Torsion-dystonia, apparently the first that has been recorded in England, and her article is illustrated with excellent clinical photographs.—Dr. Aldren Turner, of London, publishes a critical review on Modern Opinions in Regard to Epilepsy.

In the November issue the first article is from the pen of Professor C. Lloyd Morgan, of Bristol, and is concerned with the question of Psychology in the Medical Curriculum. The article is written in that delightful literary style of which Professor Lloyd Morgan is a master, and constitutes a cogent plea for the instruction of all medical students in psychology. Man is not only a complex physiological system, but an equally complex psychical system, and the time has come to consider whether the psychologist should not have a status on the staff of a medical school analogous to that of the physiologist.—A clinical symposium on Epidemic Encephalitis, for which Sir Thomas Horder supplies a brief introduction, is contributed by a number of writers from Bristol and its neighbourhood, where in the course of the summer and autumn a definite local epidemic has been raging. The clinical descriptions of the various types of the disease then encountered constitute a useful contribution to a subject of great practical importance.—The Importance of Education in the Prevention of the Neuroses receives consideration in a paper by Dr. J. Ernest Nicole, of Manchester. Psychologists and others are coming to the conclusion that the normal and abnormal developments of child mentality exercise their influence on adult character, and that there is a great need for an individual and rational education which will help to close the wrong paths and open up the right ones that are essential to human progress and development.—A remarkable series of cases of Familial Tabes Dorsalis has been under the care of Dr. J. Le Fleming Burrow, of Leeds, who supplies the details in a short article. Briefly, of six surviving members in a family of eight born of healthy parents, four acquired undoubted syphilis from absolutely different sources, yet with a resulting tabes dorsalis in all. The conclusion is justified that tabes cannot be attributed to a special strain of spirochæte introduced at the time of the initial infection, but is much more likely to be due to the spirochæte acting upon tissues specially sensitised either by natural familial peculiarity or by certain methods of treatment.—Dr. Henry Devine, of Portsmouth, writes a critical review on the Neuropathic Individual as a Social Unit, with special reference to the recent illuminating work by Professor Pierre Janet in this connexion.

The Journal of Physiology. Edited by J. N. LANGLEY, Sc.D., LL.D., F.R.S. Cambridge University Press. 1920. Vol. LIV., No. 4. Pp. 203–318. Price 9s.—The Influence of Venous Pressure upon the Heart-rate, by K. Sassa and H. Miyazaki. The authors confirm Bainbridge's results as to reflex effects on vagus and accelerator tone. They find that the greater the vagus tone, the more effective is the rise of venous pressure upon the acceleration of the heart in different species of animals or different individuals of the same animal. In frogs and rabbits where the vagus tone does not normally exist, no appreciable accelerator effect was found, the sympathetic nerves alone being not sufficient to produce this effect.—On the Correlation of the Rate of Heart-beat, Breathing, Bodily Movement, and Sensory Stimuli, by Water M. Coleman.—Studies on Muscular Contraction. I., The Influence of Temperature on the Mechanical Performance of Skeletal and Heart Muscle, by Yasukazu Doi.—On the Existence of

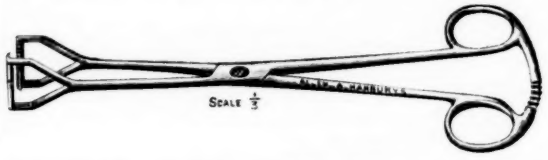
Antidromic Fibres in the Frog and their Influence on the Capillaries, by Yasukazu Doi.—On the Permeability of Epithelial Layer of the Bladder to Water and Salt, by Rinnosuke Shoji.—Cardiac Tetanus, by W. Burridge. Under certain conditions the superposition of contractions and a condition approximating to the tetanus of skeletal muscle is possible in the heart—e.g., poisoning of heart with muscarine or chloral hydrate. The author's experiments on the perfused frog's heart were performed on hearts subjected only to alterations in the proportions of their normal environment. They indicate that the greater richness of cardiac muscle in phosphates as compared with skeletal muscle is an important factor in determining its mode of behaviour. The author describes the chemical constitution of the perfused fluids which enabled him to obtain a preparation which can be fatigued, thrown into tetanus, and shows von Kries's phenomenon, such as are manifested in skeletal muscle. His experiments indicate that differing capacities to adsorb different elements of a common environment may be an important factor in determining differences of muscular behaviour.—Variations in the Resistance of Protozoon Organisms to Toxic Agents, by R. A. Peters. The author experimented with a culture of the ciliated protozoon colpidium, using a heat-standardised solution of $HgCl_2$ as the toxic agent. The animals die in such a way that there is a straight-line relationship between the time and the logarithm of the percentage of survivors for a large part of the death process. The apparent logarithm law can be interpreted in terms of the variation in the resistance of individuals of the protozoon culture to the toxic agent.—The Action of Certain Serum Constituents upon the Heart and Plain Muscle, by A. J. Clark. Various preparations and derivatives from sheep's serum were used on isolated tissues of the frog and mammal. The action of the serum is the sum of the serum proteins and of the alcohol-soluble constituents, but these two sets of substances have totally distinct actions. The serum proteins produce strong vaso-constriction and have little action upon other tissues, while the alcohol substances produce slight vaso-dilatation, a great augmented effect on the frog's heart, a moderate augmented effect upon the frog's stomach and the mammalian gut and uterus, but no effect upon the mammalian auricle. The mode of preparing the serum derivatives probably removed such substances as adrenalin and histamine that might be present in the serum. The action of the alcoholic extract of serum and of lecithin in stimulating plain muscle indicates that an alcoholic extract of any tissue is likely to cause stimulation of plain muscle and that this general action must be distinguished from the specific action of special glands such as pituitary extract.—The Effect of Alterations of Temperature upon the Functions of the Isolated Heart. By A. J. Clark.—Physical Exertion, Fitness, and Breathing, by Henry Briggs. Experiments were made to determine the oxygen consumption of persons engaged in different kinds of physical work. The methods and apparatus used are described, including ergometer tests and the results of walking and climbing experiments. Experiments were made on men climbing the main incline in a limestone mine in Midlothian, while breathing normal air and while breathing oxygen. Physical work is easier to unfit men when oxygenated air is breathed than when normal air is breathed, but no such difference is to be observed in fit men. When exertion of steadily increasing magnitude is undertaken the expired CO_2 percentage first rises and then falls. The load at which that percentage is a maximum the author calls the "crest-load," which also demarcates between normal loads and overloads, but the demarcation line is not constant. On an overload even the fittest man derives benefit from breathing "enriched air." The benefit of breathing enriched air when doing physical work is limited to air containing about 60 per cent. oxygen. Enrichment above that proportion has no effect during exertion except on unfit persons. Tables showing the oxygen consumption when walking, running, climbing, or doing ergometer work are given.—Other papers deal with Nitrite Methæmoglobin and Related Pigments, by H. Hartridge. The author gives evidence in favour of this substance being a definite chemical compound. The use of thermionic valves—a well-known piece of mechanism used with wireless apparatus and long-distance telephony—in combination with the string galvanometer, as applied to obtaining an electro-cardiogram, is described by I. de Burgh Daly and K. E. Shellshear. H. Hartridge makes an interesting suggestion as to "the ear as morphologically an apparatus for perceiving depth below sea-level," which was fully referred to in an annotation in THE LANCET last week.

THE Medical Branch of the Board of Education has been transferred from Cleveland House, St. James's-square, London, S.W., to Bridgewater House, Cleveland-square, London, S.W.1. (Telephone: Gerrard 3410.)

New Inventions.

IMPROVED DUVAL'S FORCEPS.

WHEN using Duval's special lung forceps in chest cases during the war I was impressed with their extremely sensitive and at the same time assured non-slipping grip, and came to employ them largely in abdominal surgery, where their tenacious but delicate hold proved invaluable, notably for holding or retracting the uterus, appendages, cysts, small tumours, and even gut when applied over gauze. The original model has a triangular head, of which the angles are too prominent and the bite wider than necessary. I have therefore modified it (see illustration) by removing the sharp angles of the jaws and



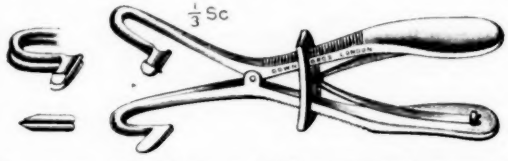
increasing the length of the instrument, thus making it more suitable for deep abdominal work. The bowed end lock prevents sutures getting caught up between the finger rings as in the ordinary pattern of forceps.

Messrs. Allen and Hanburys, of 48, Wigmore-street, London, W., are the makers of the instrument.

BRYDEN GLENDINING, M.S. Durh., F.R.C.S. Eng.
Aspley Guise, Beds.

AN IMPROVED MOUTH-GAG.

THE frequent difficulty of inserting the tooth-plates between the teeth in an emergency as well as the liability of the gag to slip forward and outward when they open the jaws are overcome entirely by the mouth-gag illustrated. Its chief features are as follows:



There are projections extending inwards from the tooth-plates; these are set at a knife-edge and in cases where patients are anæsthetised with their jaws closed the gag can be inserted quickly and easily between the teeth and the mouth opened. The advantages of this non-cutting knife-edge must be obvious to all anæsthetists; and in cases for dental extractions, particularly where the prop, which is often used, fails or falls out, it is specially useful. With this gag the prop can be dispensed with for dental extractions. There are ridges, or lips, at the posterior and inner edges of the tooth-plates, and these effectually prevent the gag slipping forwards and outwards when the mouth is forced open. There are no ridges on the anterior and outer edges, as the gag when opened does not tend to slip backwards or inwards. The angles and length of the gag are so arranged as to give the greatest leverage possible combined with strength and lightness. The handle is broad and concave, and facilitates the opening of the gag, as it provides a large broad surface for the hand.

There are fine serrations on the ratchet and these allow the gag to be fixed open in any desired position. It is unnecessary and undesirable to use rubber to cover the tooth-plates; the spring is detachable and easily cleaned.

The instrument has been made for me by Messrs. Down Bros., Ltd, St. Thomas's-street, London, S.E.

KENNETH BLACK, F.R.C.S. Eng.,
Welsh Hospital, Netley. Major, R.A.M.C.

THE LANCET.

LONDON: SATURDAY, JANUARY 8, 1921.

Medicine and Industry.

THE annual report of the Medical Research Council for 1919–20, which has just appeared,[1] points out that the problems of industrial medicine are not easily separable from those of public health in general; the overwhelming majority of the people are engaged in industry, and the greater part of prevalent disease is connected either in its origin or its extent with industrial occupations and the conditions of life which have been imposed during industrial development. When the Medical Research Committee was reconstituted as the Medical Research Council, in the middle of the year's work under review, it entered thereby into relationship with the needs of other State departments without loss of direct touch with the Ministry of Health; it came to form a constitutional nexus of a novel kind between the scientific forces of the country and the State. It would be hardly fair yet to look for results from the drawing together of this fine mesh; research is necessarily limited by the supply of well-trained men of ability available to do it. But fortunately in the field of industrial medicine it has not been hard to find eager minds, and the Industrial Fatigue Research Board, as to one half of which the Medical Research Council is responsible, has made investigations in the iron and steel trade, the cotton trade, the boot and shoe trade, the silk trade, and laundry work—the task of the Board being to combine these investigations into a concerted scheme. Great issues of health and happiness to the human race are inherent in this task, which should make an economic return altogether incommensurable with its small cost.

The outlook for industrial medicine is full of promise. Although medical service in the factories and mines of this country, when compared with the United States, is developing somewhat slowly—due possibly to the long overdue remodelling of the office of certifying factory surgeon—nevertheless important steps are being taken. The labour world, without waiting for legislation, is busy profoundly modifying hours of work: the 48-hour week has come to stop; work in factories before breakfast has almost entirely ceased, with a suddenness no one could have foretold a few months ago—soon it will become merely a subject of antiquarian interest. An Act has been placed on the statute-book permitting machinery tended by women and young persons to run for 16 hours daily, from 6 A.M. to 10 P.M., so long as no protected person is employed for more than eight hours a day; the effect of this Act upon the elasticity of employment and of production may be far-reaching. Full advantage is being taken of the powers conferred by Sec. 7, Police, Factories, &c. (Miscellaneous), Act, 1916, to make orders concerned with the provision of welfare accommodation in many industries; these orders relate to drinking water, first-aid stations, seats, cloakrooms, meal rooms, and rest rooms; in practice they simultaneously call into existence welfare supervision, and cannot fail to exert a widespread influence upon the health of industrial workers. The inspectorial staff of the Factory Department are being reorganised to deal with their new responsibilities, and the medical strength is being increased, notably by the appointment of a woman doctor. These officers have even further duties to anticipate, since a new Act consolidating legislation passed since 1901, when the last main Act was passed, may be shortly expected. Further legislation restricting the use of lead in paints may ere long be introduced in order to deal a last blow at plumbism, which would thenceforth become a medical curiosity.

Meanwhile, the Industrial Fatigue Research Board is settling down to its work, and, as the results of careful investigation, is publishing reports, to which attention has from time to time been directed in these columns, setting forth knowledge of practical value to industry and gradually revealing the laws which guide the working of the human machine. Employers reading these reports must be struck with the way in which the same ends serve the interests of productivity and of health. A new science, the science of activity and health, is here rapidly developing. The Mines Regulations Acts have received fresh inspiration from transference to the Ministry of Mines under a special department devoted to safety and health; while an expert committee of the Medical Research Council is giving close attention to that distressing and increasingly prevalent disease, miners' nystagmus. The first scheme under the Workmen's Compensation (Silicosis) Act, 1918, has been established; it only applies to a small but important industry, the refractories industry, which includes ganister mining; but it may well be the forerunner of more extended schemes dealing with the grinding of metals on sandstone wheels, the potteries, stonemasonry, and other industries with exposure to inhalation of silica dust. Kindred work going on in South Africa on the gold-fields cannot fail, as it throws light on the ætiology and prevention of silicosis, to influence in this country schemes drawn up under this Act. All in all, medicine and industry are running well in harness.

[1] H.M. Stationery Office. Cmd. 1088. Price 9*d*.

The Vital Properties of Milk.

FROM time to time we have drawn attention in our columns to irreconcilable statements concerning the loss of vital and nutritive properties sustained by milk on sterilisation or on cooking. In the light of recent bio-chemical advances in relation to the dependence of growth and nutrition upon certain accessory food-factors, we take some credit to ourselves for having anticipated, as far back as 1901, the views which are to-day held in scientific circles with respect to the changes brought about in milk by heat. Although there is good evidence to show that the excessive or repeated cooking of milk does, in some way, render it unfit as an exclusive food for infants, there is no reason for suggesting that such milk sustains any loss of nutritive value having regard to its main constituents. Those who claim that milk is less nutritious when boiled than in the raw state should make it clear to themselves as well as to others what they exactly mean by loss of nutritive value. The caloric value of boiled milk is identical with that of raw milk, but all the same boiled milk, or perhaps more accurately speaking over-cooked milk, will not serve as an exclusive food for infants or, indeed, for adult individuals, for the

reason that it contains in deficient amount certain accessory factors which are essential for growth and adequate nutrition. The name vitamines, which has been given to these intangible substances, cloaks our ignorance rather than reveals the truth.

It is claimed that in raw milk there are at least three varieties of vitamines, one of which —viz., the anti-scorbutic—is destroyed or impaired in quality by exposure to heat. It was suggested by Professor GOWLAND HOPKINS at the last meeting of the British Medical Association that it was not so much heat that destroyed this vitamine as oxidation processes to which a rise of temperature conduced. This view is supported by a vast amount of clinical evidence which goes to show that infants can grow and develop perfectly satisfactorily on dried milks which have been submitted to considerable degrees of heat without any supplementary addition of the anti-scorbutic vitamine in the form of fruit juice or other substitute. Authorities are, however, at the present time fully agreed that, since there is a risk of loss of activity in the properties of the anti-scorbutic vitamine on exposure to heat, or by prolonged preservation, it is a wise precaution to provide a supplementary supply of this accessory food factor whenever cooked foods constitute the exclusive dietary of growing children. The wider deduction that the nutritive value of boiled milk when used as a component element in a mixed dietary is inferior to that of unboiled milk is quite unjustifiable and possibly dangerous, for there is ample evidence to prove that unboiled milk can be a serious source of danger as a medium for the conveyance of many infective diseases in addition to tuberculosis itself. Even if we admit that immunity to tuberculosis, and possibly other diseases, may be acquired by the repeated oral ingestion of such small doses of the living bacilli as raw milk commonly contains, the occasional and beneficent result cannot compensate for the risk of a lethal dose of the same poisons contained in more seriously infected milk. If prophylactic inoculation against specific diseases is to be secured by the inoculation of the living germ, surely it is wiser to secure the desired end by means of the accurate and measured doses of the bacteriologist than by the haphazard and possibly dangerous method of employing the accidental impurities of milk.

The Subcommittee on Milk appointed by the Standing Committee on Trusts under the Profiteering Act have issued a Report this week, in which they come to the satisfactory conclusion that the large combinations of distribution have dealt fairly with the public, and in which they also make some interesting comments on the milk-supply of the country. Perfectly clean raw milk, in a bacterial sense, is an impossibility, but milk with a very low bacterial count is a practical proposition. In a circular issued to the local authorities by the Ministry of Health last autumn attention was called to the regulations in regard to the sale of graded milk, but little advantage appears to have been taken of the official arrangements. We think it very desirable that producers and distributors should be encouraged to undertake the supply of high-grade milk in accordance with the prescribed conditions. The designations of graded milk are: (1) Grade A Milk, and (2) Grade A (Certified) Milk. The former is defined as milk produced under specially clean and hygienic conditions from a herd free from tuberculosis, and it should be a matter of common kowledge that such milk is fit for human consumption without being heated. Grade A (Certified) Milk, also obtained from a herd free from tuberculosis, must be bottled in accordance with certain rules and show a satisfactory result on bacteriological examination. This is as near as we can get to a perfectly clean raw milk, and it can only be put upon the market at an enhanced price and treated as a medical diet. The public are advised to insist upon its supply to them should their doctors consider it essential, when retailers and combinations will allow them to have their rightful way. On the other hand, pasteurised, sterilised, and bacteria-free dried milk can be supplied to the public, not only without raising the cost of production, but actually with a considerable saving. In a recent contribution by Mr. R. STENHOUSE WILLIAMS, of the Research Institute in Dairying at Reading, he shows that the loss of milk in the London area alone from souring represents something like a million gallons a year. Although the greater part of this loss could be obviated by increased care and cleanliness in the production, the application of heat in the form of pasteurisation or sterilisation would probably effect the same object at a smaller cost. For the above and other reasons it is important that irresponsible statements with regard to the impaired nutritive qualities of cooked milk should not gain a wider currency than is at present the case. There is, however, a wide field for research still open in connexion with the nature of those illusive accessory food factors which are essential for satisfactory nutrition, which are known to exist in raw milk, and which, if cooked milk is employed, can be supplied from other safe sources.

The Insurance Medical Records.

THE Insurance Medical Records, both the way in which they are to be collected and the policy which has led to their existence, are being criticised in certain quarters of the public press, and although the controversy has not met with much reflection among the vast body of persons immediately concerned, sufficient distrust has probably been engendered to prejudice the work of the Ministry of Health in this direction. All who have been made to feel uncomfortable should purchase for themselves through any bookseller, or directly from H.M. Stationery Office, at the price of 3*d.*, the Report [Cmd. 836] of the Inter-Departmental Committee which was published last summer. This Committee was appointed to decide upon the form of medical record to be employed under the terms of service for Insurance practitioners in the New Medical Benefit Regulations, 1920, and its conclusions were commented upon favourably at the time, not only in THE LANCET[1] but in the general press. A full abstract of the Report was published in the *British Medical Journal*, when the serious faults now alleged against the document went unremarked. Correspondence ensued predicting irritation at the waste of time involved in the procedure laid down, and at the Conference of Local Medical and Panel Committees, held under the ægis of the British Medical Association in October last, there was opposition on this and other grounds, but the serious crime of incitement to the violation of medical confidence was not suggested.

[1] THE LANCET, July 31st, 1920, p. 254.

The regulations under the Insurance Acts *require* that records should be kept by all practitioners accepting panel service of the treatment of their patients; and the fact that during the war this work fell into abeyance cannot be used as any argument for depriving the nation of the value that may be derived from the maintenance in respect of the individual patients of a continuous medical history. Moreover, such records form evidence that those who have charge of a vast proportion of the health of the country are carrying on their duties in an orderly manner, and especially in a manner which shall make the study of disease a coherent thing and not dependent upon changes of individual practitioners. The aim of the Ministry of Health was from its earliest days to bring preventive medicine into its proper place as the ideal of every doctor, and, through the doctor, of the whole country. No pains, it was decided, ought to be spared in ensuring that the treatment of the diseases which are with us should be prompt and adequate; but, over and above, it was considered necessary—and this with universal approval—to take all possible precautions against the spread of these diseases, using every weapon that came to hand against early manifestations. Prevention and early detection are alike simplified by the possession of continuous records. In making the records required by the National Insurance Acts the rival claims, arising out of the need for statistical information and of the ability of the hard-worked practitioner to supply it, must be adjusted. All useless copying from card to card must be avoided, and only such clinical information as will be useful to the practitioner or his successors in charge should be included. This is the scope of the records required by the Ministry of Health. It is true that such records will be far less valuable to science than more elaborate notes properly collated might be, but neither the time nor the reward of the general practitioner allows for anything more.

All must agree that the objects in view, when it was decided that these records should be kept, were sound, though the machinery may be open to criticism. Now, however, and very late in the day, it is suggested that to keep these records is in itself a violation of one of the primary rules of medical ethics—namely, that the doctor should never disclose, save with the patient's permission, the medical confidences he has received. We have every sympathy with those who, in all times and in all places, fight for this great privilege of our profession, but we find here that the sentiment is being strained. The privacy of the records is well guarded and their contents are so limited that any hurtful leakage can hardly occur. It has been objected by different members of the medical profession that the records are too scanty to be valuable, and also that the writing out of forms ought to be left to clerks. We must point out that the two objections are mutually destructive. To take the work of keeping the records from the doctor to give them to clerks certainly spares the doctor from doing non-medical work and would allow the records to be much fuller, but the procedure would blow sky-high any defences against ethical indiscretion.

INDEX TO "THE LANCET," VOL. II., 1920.

THE Index and Title-page to Vol. II., 1920, which was completed with the issue of Dec. 25th, will shortly be published in THE LANCET.

Annotations.

"Ne quid nimis."

NEW YEAR HONOURS.

THE honour of knighthood has been conferred upon four medical men in this country: Mr. Charles Ryall, senior surgeon to the Cancer Hospital and to the Bolingbroke Hospital; Dr. William Hodgson, sometime mayor of Crewe and well known for his services to scientific education in Cheshire; Dr. Dawson Williams, editor of the *British Medical Journal*; and Dr. Squire Sprigge, editor of *The Lancet*. The chairman of the Irish Public Health Council, Dr. E. Coey Bigger, also receives a knighthood, and Dr. Alexander J. Hood, of Sydney. Among naval and military honours Major-General Robert Porter, M.B., becomes C.B. (civil division); four lieutenant-colonels in the Indian Medical Service receive the C.I.E.—namely, David M. Davidson, Frederick O'Kinealy, William Frederick Harvey, and John L. Van Geyzel. Dr. Frederick S. Hewett, surgeon-apothecary to the King and to Queen Alexandra, has been appointed K.C.V.O. To all our colleagues we tender our hearty congratulations.

A FUNCTION OF THE GREAT OMENTUM.

THE question of intraperitoneal absorption of microscopic particles, alive or dead, is one of considerable clinical importance, and the respective parts played by the diaphragm and great omentum have not infrequently been the subject of experimental and pathological investigation. Several years ago the younger Heger, of Brussels, showed that the omentum was a vigorous absorber of fine inorganic particles—of China ink—in fact, a kind of "sweeper" of the peritoneal cavity. Finely granular particulate substances, such as carmine, China ink, starch grains, lycopodium powder, are known for the most part to pass into the lymphatics of the diaphragm, whence they reach, via the lymph stream, the liver, lungs, and spleen, where they are stored up. The question remains, however, how they reach the lymphatics, directly or by phagocytic leucocytes. The classical experiment of Ludwig showed that through the central tendon of the diaphragm and its stomata coloured fluids—e.g., soluble Brücke's blue—rapidly passed into the lymphatics, even in the dead rabbit, when the movements of the diaphragm were imitated by artificial respirations. This was proved by a really beautiful display of the blue injected lymphatics. Granular particles are absorbed by the same surface, although this obviously must depend on the size of the stomata. By coating the under surface of the central tendon with collodion in animals, Clairmont, Haberer, and Peiser showed that the absorption of fluids from the peritoneal cavity was considerably diminished. E. Seifert, of Würzburg,[1] adds considerably to our knowledge of the function of the great omentum and the channels and means of absorption of finely divided particles present in or introduced into the peritoneal cavity. The experiments were made on guinea-pigs, and by way of identifying the specific forms of leucocytes that might be concerned in the process, the method of vital colouration or staining by means of a 1 per cent. solution of isamin-blue was used, the fluid being injected (6–10 times) at certain intervals under the abdominal wall. The omentum was fixed in formalin, stained, and studied, when it was found that the migratory leucocytes, the fibroblasts of the connective tissue, and the cells covering the serous membrane were coloured in the chief degree, and very faintly the epithelium of the convoluted tubes of the kidney. The groups of cells—visible to the unaided eye in the omentum, and long ago described by Ranvier as "tâches laiteuses" (milk spots)—were coloured blue, and the leucocytes of which they principally consist had blue-coloured granules in their protoplasm. With a view to a further study of

[1] Brun's Beiträge z. klin. Chirurgie, vol. cxix., 1920.

foreign granular particles in relation to the omentum, animals previously injected with isamin-blue had 3 c.cm. of a 10 per cent. emulsion of China ink in warm normal saline injected into the abdominal cavity, and were then killed at varying intervals. A certain proportion of the black particles rapidly disappeared from the cavity via the lymphatic vessels of the diaphragm, and were carried by the blood stream and stored in the star-shaped Kupfer cells of the liver, and in the lungs and spleen. The remaining particles were "phagocytised" by the microphages, and from the second day onwards there was a great increase of the cells of the milk spots, the spots themselves becoming larger and new ones being developed. The wandering cells laden with ink particles returned to the omentum and formed "spots." These cells died slowly, the spots themselves became surrounded by concentric layers of fine connective tissue, the capillaries degenerated, and the spots passed into a permanently passive state. There are no lymphatics present in the great omentum.

After the injection of a virulent emulsion of bacteria, phenomena similar to those of injection of China ink are observed. Some of the tubercle bacilli pass via the lymphatics of the central tendon of the diaphragm to the retrosternal gland and there excite tuberculous inflammation. The bacteria also pass to the liver, spleen, and lungs, where again specific tuberculous change is set up. The remaining bacilli are taken up by the leucocytes originating in the omentum, which return laden with bacilli to the omentum, causing excessive growth of milk spots in which the omental tubercles develop. In the case of China ink particles a state of repose or subsidence of action is set up in the milk spots, but in the tubercle invasion the phagocytes composing the spots are not able to overcome the infective pathological attack. The phagocytes themselves disintegrate, as shown by their inability to undergo vital staining, and there results an aggregation of tubercles. In spite of its marked absorptive and protective functions the omentum is not able to ward off the invasion of infective processes from the other surfaces of the peritoneal cavity.

TUBERCULOSIS OF THE STOMACH.

ACCORDING to Dr. Wilhelm Baetzner,[1] assistant at Professor Bier's surgical clinic in Berlin, who records an illustrative case, tuberculosis of the stomach is very rarely found at autopsy. The statistics of the Kiel Pathological Institute show that among 2000 cases of tuberculosis there were only eight examples of the kind, and Eisenhardt, among 6000 cases of tuberculosis, which included 600 of intestinal involvement, found only one case of tuberculosis of the stomach. Clinical cases are naturally rarer still, according to Albu only about two dozen genuine examples being on record. Tuberculosis of the stomach is usually secondary to pulmonary or miliary tuberculosis. Infection may take place by the blood and lymph stream, but is usually produced directly by the swallowing of infected sputum. The rarity of gastric infection is due to the physiological action of the gastric juice and the active movements of the stomach and also to the anatomical structure of the organ with its scarcity of follicles. The lesion usually found is an ulcer, which is situated most frequently at the pylorus and is liable to all the complications of ordinary gastric ulcer such as hæmorrhage, perforation, and fistula. The symptoms are the same as those present in ordinary gastric ulcer or carcinoma—viz., dyspepsia, motor and chemical disturbances, and stenosis—when the pylorus is affected. Dr. Baetzner's patient was a woman, aged 38, who sought advice for a feeling of hunger and severe pain half an hour after food. Nothing could be detected on palpation. Gastric analysis showed an absence of free hydrochloric acid and the presence of lactic acid, and the X ray examination indicated an ulcer on the greater curvature. On operation, at which Dr. Baetzner performed transverse resection, the ulcer was found to involve the mucous membrane only. Its floor was studded with nodules and the stomach showed a well-marked inflammatory infiltration. On microscopical examination typical miliary nodules were found in the mucosa and submucosa, but no bacilli were seen. The patient remained free from symptoms for three months and then had a recurrence of nausea and vomiting, with loss of weight. A second laparotomy was performed and posterior gastro-enterostomy carried out. Recovery was delayed owing to the development of active disease in the lung. At the time of publication there was distinct improvement, but the outlook was doubtful owing to the possibility of a recurrence of the gastric process.

[1] Berliner klinische Wochenschrift, Dec. 27th, 1920.

SPLENIC LEUKÆMIA IN PREGNANCY.

AT a recent meeting of the American Association of Obstetricians, Gynæcologists, and Abdominal Surgeons, Dr. George W. Kosmak,[1] of New York, read a paper on splenic leukæmia in pregnancy, of which he had collected 12 examples, including two cases of his own. The ages of the patients ranged from 24 to 40, the majority being between 32 and 36. All but one were multiparæ. A possible hereditary history was mentioned in only one case. In most of the cases the children were born alive and showed no tendency to the disease up to the time of the report, but in a few instances the babies died at varying periods after labour from a few days to five months. In four cases the birth of a macerated or stillborn fœtus took place. The mother survived in only two cases, but for how long was not determined. In many cases a prodromal period had been observed in which a pregnancy was followed by progressive emaciation, anæmia, and loss of strength from which no recovery took place, though another pregnancy supervened. Leukæmia therefore did not appear to interfere with conception. Although, judging by the recorded cases, leukæmia was a very rare complication of pregnancy, Dr. Kosmak was of opinion that a considerable number of cases of pregnancy, accompanied by marked anæmia, in which no satisfactory blood count had been made, had probably been instances of this disease. As the occurrence of pregnancy in leukæmia indicated a most unfavourable outlook for the mother, he maintained that pregnancy should not be allowed to take place when leukæmia was suspected. When the disease was already present abortion appeared to be the rule, with a rapidly progressive course and fatal issue. Owing to the harmful effect which X rays would have on the fœtus they should not be employed until after the induction of labour.

[1] New York Medical Journal, Nov. 13th, 1920.

JAUNDICE DUE TO ASCARIDES.

THAT worms in the alimentary canal may give rise to toxic symptoms in consequence of absorption of toxins produced by them is now recognised. Among the toxic symptoms produced by ascarides jaundice does not appear to have been observed, though a case in which it occurred in ankylostomiasis has been recorded. At a meeting of the Société Médicale des Hôpitaux of Paris on Dec. 3rd the following case was reported by Mons. Henry Bourges. A young soldier of the colonial infantry was admitted to hospital on Jan. 4th, 1916, for anæmia, weakness, and splenic hypertrophy. For some time he had suffered from passing febrile attacks without apparent cause. On examination he was found to be wasted and there was pallor of skin and mucous membranes with a subicteric tint in the conjunctivæ. The stools were not decolorised. The spleen was enlarged and tender on palpation. The urine did not contain biliary acids or pigment, but urobilin in large amount. There was no fever at the time. Blood examination showed: red corpuscles 3,350,000 and white 16,000, of which 58 per cent. were polynuclear neutrophiles, 7 eosinophiles, and 35 mononuclears. There were a few myelocytes and nucleated red corpuscles. The "fragility" of the red corpuscles was increased. The Wassermann reaction was negative. Two ascarides were passed spontaneously. This fact,

with the eosinophilia, led to the administration of santonin for three days, which was followed by the passage of 13 ascarides. But the state of the patient was not much altered. A new series of administration of santonin at intervals of eight days was followed by expulsion of 14 ascarides. Then the patient gradually improved. The pallor decreased, the conjunctivæ lost their subicteric tint, the spleen diminished, strength was regained, and appetite returned. Two months after the first examination the blood showed: red corpuscles 4,455,000, white 10,000, of which 53 per cent. were polynuclear neutrophiles and 47 mononuclears. The "globular resistance" of the red corpuscles had increased. Thus the patient was admitted with a complete hæmolytic syndrome, which disappeared under administration of santonin. The destruction of red corpuscles could not be attributed to syphilis, tuberculosis, or malaria, or other recognised cause. The only toxic influence which could be invoked was the ascaridiasis, and its potency was borne out by the result of treatment. Ascaridiasis is now regarded as an auto-intoxication. The chemical composition of the parasites has been investigated by Mons. Fury, who has found that they contain free fatty acids, aldehydes, ether salts, and a compound previously unknown, ascaryl alcohol. Similarly, in their excretions have been found fatty acids, aldehydes, mercaptans, and ammonia. These substances not only are irritants of the mucous membrane, but on absorption produce the nervous symptoms frequently observed in those who harbour ascarides. According to Mons. Fury the non-saturated fatty acids, such as oleic and acrylic acids, are destroyers of the red corpuscles. In the case of ankylostomiasis referred to above the icterus was also hæmolytic, appeared during the anæmia produced, and was cured by administration of thymol.

QUIET HIP DISEASE.

"Benign from its onset, benign throughout its course, it tends without any treatment to terminate in almost complete functional restitution."

IN a recent monograph on "Malum Coxæ Calvé-Legg-Perthes," Dr. Halfdan Sundt,[1] medical superintendent of Fredriksvern Coast Hospital for scrofula and surgical tuberculosis in Norway, gives an account of a disease which only a decade ago was practically unknown and commonly mistaken for tuberculosis of the hip. Yet it appears to be of frequent occurrence; so frequent, indeed, that Dr. Sundt's material consists of as many as 66 cases. Most of these were sent to hospital with the diagnosis of tuberculous disease, and it is amazing to find how greatly the number of cases diagnosed as tuberculous can be whittled down by the help of modern methods of diagnosis, notably the X rays and von Pirquet's test. Indeed, it appears from the records of Fredriksvern Hospital that no fewer than 43·4 per cent. of all the cases of hip disease proved, after careful sifting, to be non-tuberculous. The recognition of "quiet hip disease"—a term given by Taylor and Frieder—as a well-defined entity has thrown much new light on the frequency and seriousness of true tuberculosis of the hip. For when these benign, non-tuberculous forms of hip disease are sorted out from cases of definite tuberculosis of the hip, this is shown to be a far more serious and far less common condition than was once thought to be the case. Hence Dr. Sundt's conclusion that all statistics which have dealt in the past with the incidence and severity of tuberculosis of the hip are hopelessly incorrect and misleading. He has come to the conclusion that when a case of hip disease clears up completely, tuberculosis can be confidently excluded from the diagnosis. One of the most instructive chapters in his monograph deals with the results of treatment, or absence of treatment. In 19 cases the patients were treated as for tuberculosis by immobilisation for one to four years, and an average of more than two years. In another group of 16 cases immobilisation or relief from pressure was prescribed for less than a year, the average duration of treatment being about six months. Finally, in a third class of 23 cases, observed over a period of nine months to 12 years, with an average observation period of more than three years, no treatment was prescribed, and the children were allowed to run about freely in spite of limping. The final results were equally good for the three classes, a finding that betrayed the unwisdom of treating these cases by immobilisation. But, as the short paper on this subject by Mr. H. A. T. Fairbank in THE LANCET for Jan. 1st shows, English surgeons have not come to the same conclusion on this point. Dr. Sundt disagrees with Perthes's term "osteochondritis" for this condition, as he believes inflammation plays no part in its genesis; this appears to be multiple, with trauma, age, sex, and predisposition playing important parts. It is to be hoped that Dr. Sundt may find a translator to collaborate with him in making this valuable monograph accessible to English readers.

[1] Undersökelser over Malum Coxæ Calvé-Legg-Perthes. By Halfdan Sundt. Christiania: Jacob Dybwad. 1920. Pp. 231.

FOOT-AND-MOUTH DISEASE.

THE epidemic stomatitis of cattle is a plague alike to beast and man, for while it has not a high case mortality convalescence in cows is long and capricious, and the loss of milk is as serious to the producer as the precautions against infection are exasperating. For summer after summer, in 1914 especially, many attractive Swiss passes were closed to the tourist in order that he should not carry the contagium from pasture to pasture, and in this country the embargo on importing live stock is likely to become a serious obstacle to the solution of the milk problem. The present outbreak of foot-and-mouth disease in the Midlands is unfortunately one of the worst this country has suffered from. There is a grave danger of pedigree herds of cattle and sheep (whose loss would be almost irreparable) becoming affected. Little definite has been fully decided as to the method of spread of the complaint, but it has been shown in Switzerland and Germany that the administration of sulphate of iron in the drinking-water and cacodylate of iron subcutaneously has a marked effect in reducing the virulence of an attack and in curing the disease. The milk-supply, especially in the case of children, needs watching, since the disease may be transmitted to man by raw or uncooked milk and its products. The malady, however, always runs a mild course in human adults, although in children gastric catarrh may result and even death has been recorded. The heavy mortality among Welsh sheep which recently attracted sensational notice was not attributable to foot-and-mouth disease, as investigation proved it to be due to liver rot or fluke, a disease always very prevalent after wet summers. We may well hope that the research work now being conducted on board old ironclads will soon throw some light on the habits of the contagium if not on its actual appearance, for it may well be as elusive as that of small-pox. The close clinical parallel between the two diseases has, indeed, already suggested the same kind of remedy. At the Bavarian vaccine station, Privat-dozent A. Groth has succeeded in inducing an apparently specific local disease by intracutaneous injection of material from an aphtha; in the swine and sheep the infiltrations so produced may break down and a general aphthous attack follow, but in the more refractory rabbit the infiltration may remain localised and it is hoped prove the source of a preventive vaccine. The work at all events promises well.

PROFESSOR CARL TOLDT.

A MAN of science whose publications began in 1868 with a method of injecting lymphatics, and, ranging over the fields of comparative and descriptive anatomy, embryology and histology, extend to 1915 when he contributed a note on the development of the mandible, has left a record of his life's work which needs no embellishment. Carl Toldt, Emeritus professor of descriptive and topographical anatomy in the University of Vienna, died recently at the age of 80, and his mind retained so much vigour and enthusiasm that he will be missed by his colleagues more than would many a younger man. Born at Bruneck, in the Tirol, he qualified

in 1864, and after serving in the war against Italy became assistant in the physiological department of the Josepho-Akademie, later succeeding Professor Ewald von Hering as its director. In 1869 Toldt began to specialise in histology, became professor of anatomy, with charge of histological teaching in Vienna and later in Prague, eventually returning to Vienna in 1884 as professor of descriptive and topographical anatomy, an appointment which he retained for 24 years. His most famous work is connected with the mandible and its surrounding structures and his best-known publication, at least outside his own country, is the Anatomical Atlas, which appeared in 1896–1900. Since his retirement Professor Toldt had been chiefly concerned in anthropometrical investigations and the study of prehistoric forms of man, and his observations in this region of knowledge were no less sincere and important than his contributions to descriptive anatomy.

MEMORIAL TO THE LATE DR. A. J. CHALMERS OF KHARTOUM.

THE late Dr. A. J. Chalmers, the well-known authority on tropical diseases, and joint author with Dr. Castellani, of "Tropical Medicine," whose sudden death on his way home on leave in April last was a great loss to the profession and his numerous friends, left a splendid collection of medical books, mainly on tropical diseases, and including some almost priceless incunabula. The whole of these, with the exception of a small number presented to the Royal College of Physicians of London, have been given by Mrs. Chalmers to the Royal Society of Medicine. The Society has wisely decided that the collection shall be kept together and be known as the "Chalmers Collection," and now we are informed that Mrs. Chalmers has presented the Society with the sum of £500 for the shelving and furnishing of a room in which the books will be kept as a memorial of her husband. It is hoped that the collection will be added to from time to time, and the room chosen for the Chalmers Library is well adapted for the purpose.

This admirable donation coincides happily with the reconstruction of the new Section of Tropical Medicine and Parasitology. The Section was formed in 1912, but was suspended during the war, and has only this session been formally constituted, and among the first nominated officers are Lieutenant-Colonel Sir Leonard Rogers as President, and as Vice-Presidents, Professor Leonard S. Dudgeon, Lieutenant-General Sir John Goodwin, Vice-Admiral Sir Robert Hill, and Professor G. H. F. Nuttall. That all these at once accepted office is a good omen for the success of the new Section. Sir Leonard Rogers recently presided over the first meeting of the new Section, when an exceptionally interesting programme was provided,[1] and we are now able to congratulate it on starting with a library of its own, which is probably the finest collection of books on tropical medicine to be found.

BY an Order in Council, dated Dec. 21st, 1920, it is enacted that the Order of Jan. 7th, 1915, shall be revoked without prejudice to the right of any persons whose names have been already entered on the Register. The Kingdom of Belgium no longer affords to the medical practitioners of the United Kingdom such privileges of practising in Belgium as were offered during the late war. Practitioners possessing Belgian qualifications are, therefore, no longer entitled to registration in the Medical Register of the United Kingdom.

[1] THE LANCET, Dec. 11th, 1920 (p. 1198).

THE King Edward Hospital Fund has made a grant of £1130 to the Devon and Cornwall Sanatorium for Consumptives, Didworthy, on condition that eight beds are reserved for the use of King's College Hospital, Guy's Hospital, and the City of London Hospital.

THE FUTURE OF THE DROITWICH BRINE BATHS.

(FROM OUR SPECIAL COMMISSIONER.)

Droitwich, December, 1920.

THOUGH the statistics might have been more carefully kept and more extensive there can be no doubt as to the excellent results often obtained from the brine baths of Droitwich. The nearest approach to a record on an extensive scale will be found at the St. John's Brine Bath Hospital, a charitable institution supported by voluntary contributions and erected in 1892. Here there is room for 24 male and 17 female patients. Till recently the treatment was, with some exceptions, limited to two weeks, and under these conditions the figures for ten years show that an average of 650 patients have been treated per annum. The secretary of this hospital has informed me that, after 25 years of personal experience, and on records kept from time to time, the result would show that 75 per cent. of the patients obtained permanent benefit. But it should be noted that of the 25 per cent. who received no benefit several received no treatment. In the course of a day or two it was discovered they were afflicted in a manner which the treatment could not alleviate—malignant growths or certain forms of skin disease—and they were therefore at once sent away. The hospital is only intended for the treatment of gout, sciatica, rheumatism, and kindred complaints. During the war, and as a result of the hardships endured in the trenches, many soldiers suffered in these ways, and no less than 50,000 baths, free of cost, were given to officers and men serving mostly in the army, but occasionally in the navy. Mr. Hollyer, the general manager, converted his private house into a convalescent home for 20 officers. Then a hospital with 40 beds for private and discharged soldiers was opened, and the War Office expressed the thanks of the Army Council for this generous and whole-hearted attention, which proved of great practical value.

Opportunities and How to Meet Them.

Evidence and statistics might have been collected on a much larger scale, giving more conclusive figures as to the benefits of the brine-bath treatment. Not that there is any lack of such evidence. Piles of letters are forthcoming from grateful patients, but there has been no centralised and systematic effort to group the facts and give a summary of the results. In this, as in other respects, Droitwich has trusted too much to individuals, and has somewhat neglected to organise collective effort for the common good. As a consequence magnificent opportunities were lost. None could have been more evident than that created by the war when so many patients were unable to go to the continental thermal stations they were in the habit of frequenting. That was the moment when all the citizens of Droitwich should have gathered together and insisted on organised action, and when, it might be thought, medical men would have seized the opportunity for study afforded by a large number of patients, more or less belonging to the same class, suffering under conditions brought about by circumstances common to them all. The stress caused by the war, the need to unite every effort to relieve the wounded, and the acknowledged services, in so many cases, which the brine baths at Droitwich had been proved to render—these things would have rallied both Government and public to the support of some practical scheme to convert Droitwich into a national asset, if such a scheme had been brought forward. In this spirit Droitwich fully participated by giving free baths, free hospital treatment, and friendly sympathetic hospitality to the war victims. But there the movement seemed to stop; yet there was so much to follow. The war has ceased, but the consequences of the war are only beginning to be fully understood, and will only be met by broad national efforts such as those which won the war.

So far well-to-do private patients, who can pay for all they require, are generally able to take sufficient

care of themselves. Nevertheless, they are fully entitled to ask why a place like Droitwich cannot be brought up to the level in ordinary amenities which many continental spas have attained. In such places the hotel manager participates in the actual treatment. The patient's medical adviser sends his prescriptions round not only to the dispensing chemist but also to the hotel manager, who has to be prepared willingly to provide any special diet considered desirable. Indeed, all the hotel and lodging-house keepers should be grouped together and periodical lectures given to explain how they can best second the efforts of the medical profession to cure the patients and thus contribute to improve national health and local prosperity. If hotel managers consider patients who need special diet too much trouble and strive to get rid of them, they must not be surprised to find that preference is shown for continental spas. British hotel-keepers, especially in a place which has legitimate aspirations to be considered a health resort, have got to learn that they are engaged in a national work, and that the resources of this country ought to be developed for the sake of all. Incidentally they would put money in their pockets. More baths, more houses, more enterprise, are wanted. It is not because some enterprises are paying concerns that nothing further is to be done. By all means let those engaged in the business earn good profits; but the first consideration is that the nation should be able to avail itself of the healing qualities of the Droitwich waters. As matters now stand, striking cures are effected, but the advantages of such cases to the reputation of Droitwich are often lost because the facts are insufficiently known, and there is not the necessary accommodation for a large increase of patients.

The Housing Difficulty.

The main or the most immediate problem is the housing problem. It presents the same aspects here as everywhere, but I may be excused for setting it out, as it shows how in numberless other places, as well as at Droitwich, the obvious needs of development cannot be immediately met. More houses and more baths are urgently wanted at Droitwich; but at the present cost of building it is difficult to find anyone ready to risk the necessary outlay. There is a Government scheme for the construction of 56 houses, which have to be completed by June, 1922. Of these 16 have already been erected. They are all to be working-class cottages and none are to be let at a higher rent than 8*s.* a week, which, it is calculated, will not represent more than 2 per cent. on the capital outlay, if estimated at the present cost of building. Also these houses must not be rated at more than 1*d.* in the £. So that the State stands to be a heavy loser, while it is thought that this will not increase, but will more probably check, speculative building. In any case these 56 cottages are to be let for less than half the rent that should be paid to cover the cost, and the question is asked who are to be the privileged tenants. Yet and whatever the answer may be to this question, it is but a detail, for something on a much larger scale is needed.

It is a matter of national importance to preserve the health and strength of all those who by productive work are helping to rebuild British prosperity. Curing the sick is but a small part of the problem before the Ministry of Health, though newspaper critics are clearly blind to the fact. The prevention of sickness and its remedy in early stages are the great desiderata. One of the real benefits of the compulsory system of insurance is that it enables the poorest sections of the community to seek medical advice at a much earlier stage of the disease. At Droitwich local practitioners expressed the opinion that anyone who has suffered from some rheumatic complaint of sufficient severity to be laid up for two or three weeks should take a course of brine baths as a preventive against other and more severe attacks of a similar nature. Certain it is that many patients would have given themselves a much greater chance of complete cure had they commenced the treatment at an earlier stage. It is not as a last hope that patients should come to Droitwich, but rather as the first form of treatment, and this will only be largely available when building, reconstruction, and cooperative organisation are set going.

Spa Treatment on a National Scale.

These considerations open out a gigantic problem for so small a place as Droitwich to handle. There were 11,500,000 persons entitled to medical benefit under the Insurance Act in 1919, and it will probably be found that the number has been increased by about a million in 1920. There were, in 1919, in England and Wales, 20 million weeks of unfitness for work among insured persons. If only a very small proportion of these 20 million weeks of sickness were spent at Droitwich what a colossal undertaking this would represent for so small a place. Yet there is nothing new or out of the way in such a suggestion. It has been done, done for years and very successfully, but, of course, only on a small scale. Still, shall it be said that what a few workmen have been able to achieve for their own benefit cannot be accomplished on a much larger scale by the united forces of the entire nation? In both cases the position is identical: the only difference is in the number of persons involved. This is what happened. When the St. John's Brine Bath Hospital was first started every person who subscribed a guinea per annum had the right to send a patient, who was admitted in his turn. The patient had to pay 10*s.* a week for his maintenance, and received medical advice, complete board, and the necessary baths for a fortnight. These rules have now and quite recently been altered. The voluntary subscription has been raised to 3 guineas, and the time of treatment to three weeks. But these are only details that do not affect the principle, for this depends not so much on the amount paid, but on who it was who paid. Now, in this respect, the remarkable fact, that cannot be too carefully noted, is that the hospital, in the earlier stages of its existence, owed its success mainly to the Hearts of Oak Friendly Society. Here, then, we have, on a smaller scale, conditions similar to those that obtain under the Insurance Act. A sick fund is created by small weekly subscriptions, when experience demonstrates that, by sending some of the patients to Droitwich, they were sooner able to return to work. Thus the amount of sickness and the drain on the sick fund is reduced—a double saving, which other similar institutions soon learnt to appreciate. Sick funds established in large works or factories began to send some of their patients. This was notably the case at Coventry. The Birmingham Saturday Hospital Fund has now a beautiful convalescent home at Droitwich with some 60 beds. The benefit societies have found it cheaper in the long run to send their patients here. Then what about the panel patients? Is there not a saving to be effected with them on what might be called a national scale? This would undoubtedly be the case, especially if a large number of patients could be sent sooner. Here are the means of economising health and money; all that is needed is the power of organising and the initial outlay, to be ultimately refunded. It is not a question of spending money, but, by reducing the prevalence and duration of sickness, of saving money. What the Hearts of Oak Club has satisfactorily demonstrated on a small scale it should be for the Government and the public to assist in realising on a national scale.

The waters of Droitwich are recognised as the strongest natural brine in Europe. They contain more than 20,000 gr. of chloride of sodium per gallon. They also give off radio emanations, which the patients inhale while bathing. The curative and tonic properties of these waters have been proclaimed by numerous competent authorities. Such a source of health and wealth should be developed to the uttermost, and not be allowed to languish for want of enterprise. Droitwich deserves to acquire popularity equal to that of the best continental balneological resorts.

MANCHESTER ROYAL INFIRMARY.—A tablet to the memory of resident surgeons of the Manchester Royal Infirmary who were killed during the war is to be placed in the main entrance of the building. The cost, about £100, will be defrayed out of the Medical Board Fund.

HYGIENE ON THE SEA:

ACCOMMODATION FOR SEAMEN IN SHIPS OF TO-DAY.[1]

(BY OUR SPECIAL CORRESPONDENT.)

VI. A UNITED STATES PASSENGER LINER.

THE *Panhandle State* (10,553 tons), of the United States Mail Steamship Company, was lying in Tilbury Docks when I found her. She is quite a new ship, laid down during the war, twin-screw and oil-burning. She only carries 120 passengers, all in the first class, and all in the midship superstructure. Captain Cunningham, Dr. Rebert, and her officers were most kind and anxious to take me to all of their ship, of which they are naturally very proud.

Passenger Accommodation.

The cabins, all outside, vary a little in size, but are, every one of them, quite commodious. The standard equipment is two beds, each with a shaded reading light at the bed-head, so that one can read without disturbing a cabin companion; there is a fixed basin with hot and cold water, and alongside it a thermos flask of iced water. Each passenger has five small drawers for necessaries of the voyage. In the larger cabins there is a settee with two longer drawers underneath it. There is artificial supply of air, an electric fan, a steam heater, and a wardrobe. Half the cabins have private bathrooms; there are also public bathrooms and over each bath is a douche, with mixer, so that the temperature of the shower is regulated at will. The saloon, at the fore end, is fitted with tables for four people each and with excellently pivoted chairs. The saloon is heated with hot air. Behind it is the pantry, directly over the kitchen, in which the cooking is done either by steam or on an oil-fired range; oil is said to be as great an improvement on coal in the kitchen as it is in the stokehold. Outside the kitchen is a bakery, where the dough is all made by an electric kneader, beyond that the butcher's room, steward's store, &c. There is also a laundry, with much machinery, but idle, because unneeded on this short run. The passengers have a music room or social hall (piano and gramophone), a smoking room (also with a piano), and a verandah café at the after end where they can sit on deck and yet be out of the wind; also there are two promenade decks, one enclosed in all its length, with sliding glass windows, so the passengers are not badly off. The officers, too, are well looked after and have plenty of room in their cabins, and these are well furnished. They also live in the superstructure, a deck or more above the passengers.

The doctor is very nicely treated. His suite is at the corner of the superstructure, portside aft. His sleeping cabin is right aft, his bathroom, basin, and w.c. are along the portside, behind a partition, and his office or surgery, between sleeping cabin and lavatory, opens off the passenger's alley-way. There is a large dispensary cupboard in the office, but the space is not much encumbered, though the furniture is "good and plenty." Another door in this bewilderingly large cabin gives access to a staircase leading to the crews' quarters, so that everyone can easily reach the doctor's office, passengers from one side and crew from the other, without crossing one another. Very well planned all of it, making first-class accommodation for a medical officer.

Seamen's Quarters.

The accommodation for the sailors is in keeping with that for the officers and passengers. It is such as I have never before seen. I was first taken to the sailors' mess place, it is amidships, not far from the kitchen. It had a mess-table for 12 men. I suppose it was 12 feet high, 10 feet wide, and 14 feet long; 140 cubic feet per man for the 12 men who messed here. There was the appropriate mess-rack and dresser, also a steam table for keeping food hot, with a cupboard below to warm the plates. This for 12 men, and similar equipment for every mess in the ship. Besides on the dresser there was a steam coffee machine, the same pattern as in first-class passengers' pantries in English lines, and coffee free for the sailors all day and all night long for the turning of a tap. I was curious to hear how much coffee this meant, and was told that 2 oz. daily, 1 lb. a week, was, in practice, the expenditure per man. There were similar messes for petty officers and for the engine-room staff. There are lavatories for firemen, with douche and two fixed basins, so far as I can remember exactly the same as for the first-class passengers. In their w.c. I found a roll of latrine paper, provided apparently by the public conscience of the messes. Next I came to the firemen's sleeping berths; they are cabins for three men. The first I estimated as 12 feet high, 6 feet long, and 10 feet broad; this works out at 240 cubic feet per man, and in their sleeping place, quite apart from the 140 cubic feet each I have mentioned in the mess places, apart also from the bathroom accommodation, both of which are included in the English official 120 cubic feet per man. I expressed some surprise at this generous allowance, so much larger than any I had ever found, and doubted my calculation, but was assured that 240 cubic feet was all right, that being the legal minimum for a member of the crew in an "American" ship. And this firemen's cabin was not bare. Besides the bed places (iron), one single, one double-tiered, there was a toilet-rack for tooth and shaving brushes, little cupboards in it too, a looking-glass for each man, and a steel clothes locker of the pattern so familiar in U.S. factories; it varied in size according to the position in which it must be placed, but a standard size would be 6½ feet high, 10 inches wide, with a shelf across about 1½ feet from the top and below that hooks for clothes. The steel door has three ventilating louvres and is secured by a padlock. There are many hooks about the walls for the men's other clothes. There is an electric fan, and plenty of electric light, which spreads its effect widely because the cabin is so lofty, and there is a good heater.

Baths and Lavatories.—Hospital.

The sailors of the crew are berthed in a deck-house aft, and their accommodation is quite similar. They have a bathroom and lavatory, painted, not white, as I like, but a light slate-blue, and no abominable brown or yellow dado. The showers supply warm fresh water, and the men have plenty of room. The stewards' accommodation is on the deck below and is very similar. There are some 40 stewards, and they have two douches of their own. The hospital is right aft, astern of the deck-house for the crew. There are four beds, double-tiered, and the operating-table is amidships; the whole well lighted. There is a fixed basin with water steriliser and a w.c. Here I got a surprise. I had seen baths, basins, w.c., &c., throughout the ship, and had taken them for ordinary white earthenware and good of its kind, but happening to say so when in the hospital I was told I was quite mistaken. They were one and all of iron, porcelain enamelled, the enamel baked on. Lighter, cheaper, and less breakable than earthenware, and giving exactly the same security for cleanliness and the same decorative effect. The only fittings in the ship I should like to see changed are the w.c.'s for the crew; they are not well-shaped and are less easily flushed therefore, nor so well enamelled and smooth. That such a complaint should alone emerge seems to suggest that the rest of the ship was very good. Besides, I did hear there was some thought of replacing these w.c.'s by a better pattern.

Coming away from the hospital I noticed what the French call a *gouttière*, a gutter stretcher of steel frame with wire netting over, for moving, and perhaps for hoisting out a lying-down case. It had a short pillar to steady the patient by the perineum, and the necessary hand-holds, also serving for securing bandages or the slings for hoisting a patient out. I mentioned the gyroscope compass on the bridge of *Imperator*. On board the *Panhandle State* I was

[1] Previous articles which have appeared in THE LANCET describe the accommodation on *Aquitania* (Sept. 11th, 1920), *Olympic* (Sept. 25th), *Imperator* (Oct. 9th), *Achilles* (Nov. 27th), and Cargo Steamers (Dec. 18th).

shown the gyroscope itself, in a special compartment, the gyroscope room. There are two gyroscopes—heavy wheels revolving 10,000 times a minute; they are fixed parallel in a frame, and as each when revolving takes up its position with its axis parallel to the axis of rotation of the earth, the line between the poles, the index of the frame points always to the north, and is not diverted by the local variation or the quadrantal or other deviation of the ship, and one of their great anxieties is off the navigator and the captain. The ship has a very delicate "wireless" receiver in which the officers are much interested. I was allowed to listen, and heard quite distinct clicks, which they told me were signals from a wireless station in the United States. This at 4 P.M. at Tilbury.

Summary.

On her small displacement this ship does more for her officers and crew than any ship I have seen up to the *Aquitania* and *Olympic*, five times her size. The men are treated more kindly than in any English lines. They ship at New York for the voyage or for six months, whichever is the shorter. When they return to New York they are discharged, but any man who wants to go on again, and is appreciated, signs on again next day. Service for approved men is thus practically continuous. That means no boarding-house bill, fewer temptations, more saving. This ship is not a charitable institution but a business proposition, and I therefore feel emboldened to impress on British shipowners that other people can give their crews better accommodation, free coffee all the time, and continuity of service, and will find it pay to do so. Also, that they can lodge their doctor comfortably; doubtless the owners get a more skilful surgeon who gives them better service.

I must express my thanks to the U.S. Mail Steamship Company for kindly letting me go on board this very interesting ship. I expected to find something rather good in accommodation for sailors on board a United States ship and I was not disappointed.

CONTROL OF VENEREAL DISEASE.

The Dangers of Half Measures in Syphilis.

PUPILS of Cæsar Boeck, late professor of dermatology in Christiania, used to speak almost apologetically of his antagonism to the exhibition of mercury in syphilis. He argued that, particularly in early syphilis, mercury is apt to modify the reaction of the organism to the invader, and by rendering the course of the disease atypical do the patient more harm than good. At the time his distrustful attitude towards mercury was rather contemptuously condoned as the foible of an otherwise gifted scientist. Now, however, there seems to be a growing conviction that timid specific treatment with mercury or salvarsan may divert the disease from other parts of the body to the central nervous system. At a recent meeting of the Medical Society in Christiania Boeck's successor, Professor Bruusgaard,[1] discussed two series of cases which throw light on this point. The first included the 630 cases of early secondary syphilis treated at the Dermatological Department of the Rigshospital in Christiania since 1912. Among these were ten cases of neuro-recurrence, and a feature common to all was the timidity, dilatoriness, unmethodicalness, and general inadequacy of the specific treatment they had received. In one of these cases there were signs of meningeal irritation early in the disease which terminated fatally 16 months after infection. The lepto-meningitis found post mortem was, in Professor Bruusgaard's opinion, undoubtedly fostered rather than checked by the few intramuscular injections of salvarsan which were given at long intervals. His second series of cases, a total of 420, concerned patients with early secondary syphilis treated since the summer of 1915 with large doses of salvarsan and mercury. In this series there was only one case of neuro-recurrence, the patient being a workman, aged 20. The cerebro-spinal fluid was normal on his admission to hospital. He was discharged, after a combined course of salvarsan and mercury, symptom-free and with Wassermann's reaction negative. A month later he reappeared with signs of severe syphilis of the brain. Had he but examined the cerebro-spinal fluid before the patient's discharge, Professor Bruusgaard thinks this disaster might have been avoided, as the evidence of lumbar puncture would probably have indicated further treatment. Though he attaches great importance to pushing specific remedies to the utmost, he recognises conditions under which the affinity of the poisons of syphilis for the nervous system may be so great that, with the best of care, the disease is apt to settle in the nervous system, thwarting the most heroic efforts to dislodge it. The figures given in this paper certainly suggest that neuro-recurrence is more common after casual than after systematic and vigorous treatment, but they do not show that syphilis of the central nervous system is more common after casual specific treatment than in the absence of any treatment. In the nature of things this point must be difficult to settle by statistics, for to control specific treatment by a comparison of treated with untreated cases involves unjustifiable methods.

[1] Norsk Magazin for Lægevidenskaben, November and December, 1920.

The German Association for Combating Venereal Diseases.

A pamphlet issued by this Association, and recently received by the N.C.C.V.D., to which we are indebted for the following notes, gives in brief space a comprehensive review of its history, ambitions, achievements, and, perhaps most instructive of all, its failures. The Association has now been at work for over 16 years, and to judge from its candid survey, its activities have grown rapidly, and its sphere of usefulness has been greatly enlarged. The original objects of the Association were the recruiting of the greatest possible number of members from all strata of society, the formation of branch associations, convening of meetings and giving of lectures on sexual hygiene, distribution of popular educational literature, direct and indirect exercise of pressure on legislative bodies, reform of the treatment of venereal disease, supervision of prostitution, sympathetic contact with the daily press, and the founding of a special journal. Altogether an ambitious programme. It was soon found that educational propaganda was the first and most essential need; ignorance as to the dangers and consequences of infection proved to be enormous. But the wording of educational propaganda was at first a serious stumbling block, for marked differences of opinion arose as to: (1) the effect of sexual continence on health; and (2) the morality and tactical wisdom of advocating prophylactic measures. The upshot of these differences appears to have been a compromise; the exact nature of this compromise is not disclosed, but is said to be "tactful." Many millions of pamphlets have been published for the guidance of men and another pamphlet has been published for the benefit of women, in which both the hygienic and ethical aspects are emphasised. It was, however, found that the information given in these short pamphlets was too sketchy and more elaborate publications were called for. These proved useful as material for popular lectures and instruction of children by their parents. Pictorial propaganda in the form of lantern slides and cinema productions have also been pushed with vigour and success, and a travelling exhibition has also proved very effective. The translation of Brieux's play, *The Shipwrecked*, by Professor Flesch, was a considerable but not complete success when staged in Germany; its dramatic force made a deep impression, but from the artistic standpoint it was faulty. Many hundred thousands first learnt of the importance and great dangers of venereal diseases through this play. It was also filmed under the title of *And There Was Light*, but it had to be confessed that the artistic blemishes were emphasised on the film, and the educational utility of the work was largely obscured by side issues dragged in by producers anxious to add to its commercial value.

So far the efforts of the Association to introduce sex hygiene into the curriculum of schools of various

grades have met with much passive obstruction and have been fruitless. But its original ambition to publish a journal in which every aspect of the problems involved could be discussed from every point of view has materialised in 16 volumes of *Mitteilungen der Deutschen Gesellschaft zur Bekämfung der Geschlechtskrankheiten*, and in 18 volumes of the more scientific publication *Zeitschrift für Bekämfung der Geschlechtskrankheiten*. An example of the usefulness of these publications was their free ventilation of the problem of infection conveyed to their homes by discharged soldiers. This discussion prompted the establishment of consultation centres and dispensaries for venereal disease in many parts of Germany.

In the field of legislative reforms the activities of the Association appear to have been numerous. Its agitation against penalising insured persons suffering from venereal disease and disqualifying such persons for insurance benefits quickly led to reforms. The Association has also made its influence felt in legislative measures dealing with such matters as the sale of preparations supposed to prevent conception. It has also succeeded in extending the obligations of professional secrecy, incumbent on doctors, to officials employed in the administration of sickness insurance. Further, its interest in the problems of prostitution led to its appointment of an independent commission of experts whose recommendations were largely reflected in the Bill submitted to the Reichstag in 1918 on the control of venereal disease. Much has also been done by the Association to get venereal disease treated as a specialty by specialists. It has also secured chairs at certain universities for venereology which has become a compulsory subject for examinations in medicine. It would thus appear that many, if not most, of the reforms carried in Germany with reference to the venereal diseases have been instituted by *Die Deutsche Gesellschaft zur Bekämfung der Geschlechtskrankheiten*.

Prophylaxis in a Texas Camp.

In a recent number of the *Military Surgeon* Captain T. Hall, of the Sanitary Corps, U.S. Army, presented a summary of the reports on the 10,000 cases of venereal disease notified to headquarters between Sept. 10th, 1919, and Sept. 13th, 1920. Amongst them there were, per cent., 66 cases of gonorrhœa, 21 of chancroid, and 13 of syphilis. It may be noted that in 1914, the last year for which statistics are available, the figures for the British Navy were almost the same—68, 22, and 19—amongst some 8000 cases. In the American Army the prophylaxis of venereal disease seems to be increasingly, though only slightly, justifying itself. The town from which most cases (456) are reported is in Texas, four miles from a great camp, and the second paper is a particularly interesting account of prophylaxis at that camp. In an account, which will well repay perusal by all who are engaged in minimising the disasters of venereal disease, Major C. W. Shaffer, Medical Corps, U.S. Army, who was sanitary inspector of the second division, quartered in that camp, describes the measures he took between January and July, 1920, to draw the men to avail themselves of the prophylaxis offered them. He desired to get prophylaxis taken and to get it taken early. There was a treatment centre already in the town, but it was out of the way. He got space in an army hut, close to the centre of the town, near the theatres, and near the station from which the trams and 'buses started for the camp. Men on pass would not leave the town early in the evening to go out to the camp for treatment and lose the rest of their leave; so he brought treatment to them and they took it. He had a very neat equipment installed, had a trustworthy orderly always on the spot, and saw that the place was kept as perfectly as an operating room. The orderly saw disinfection thoroughly done, otherwise each man had complete privacy for his ablutions. The equipment and the minute routine of treatment, both very judicious, must be read of in the paper. The men reacted to this care for them; 10 was the approximate number per night, but 63 were treated on one single evening. In all 1361 men were dealt with in six months. Of these, 572 belonged to the camp, so that their history could be followed. Amongst them there developed only 3 cases of disease, and it is suspected that these came late for disinfection. Major Shaffer tried tactfully to get the men to take treatment and was successful; he tried to get treatment taken early, and here again he had success. How little weighs his trouble, the cost of the equipment, and the wages of the orderlies, how little they all are compared to the damage to the nation and expense to the army of the possibly 250 additional cases of venereal disease saved in six months in the town which in this year inflicted 456 cases on the United States Army.

The All-America Conference.

The Washington Conference last month was attended by over 400 delegates, there being representatives from Argentina, Brazil, Chile, Ecuador, Cuba, Honduras, Mexico, Paraguay, and Porto Rico on the New World side. Canada was officially represented by Dr. John A. Amyot, deputy Minister of Health. Sir Arthur Newsholme was put down as English representative, although he still occupies a chair at Baltimore. Dr. T. F. Ritchie, Lieutenant-Colonel, R.A.M.C. (retired), came from the League of Red Cross Societies. Czecho-Slovakia sent two delegates.

The conference is described as one of the most remarkable medico-sociological gatherings ever held in America. A General Conference Committee was selected by the president, Professor Wm. H. Welch, on the nomination of the Administrative Committee, to include pathologists, bacteriologists, syphilographers, urologists, gynæcologists, general clinicians, statisticians, clergymen, educators, psychologists, psychiatrists, sociologists, law enforcement officers, social service workers, and others. At the first meeting of the Conference they were divided into 12 groups, each dealing with a special group of problems, presented in the form of questions previously prepared by the Administrative Committee. At the afternoon session each section chairman reported for general discussion the conclusions arrived at by his section in the morning meeting. These discussions often showed that conclusions quite valid from the restricted view-point of one section had to be modified considerably to meet the requirements of other sections or of the entire committee. In some instances conclusions presented by one section and sharply combated by members of another section were referred to a joint meeting of the respective sections and of such others who were interested with instructions to submit a report on the following day. In other instances conclusions presented to the General Conference Committee by one section were adopted with little or no change.

In this way a number of conclusions were reached by the whole Conference, of which the following were noteworthy:—

Immunity.

With reference to *gonorrhœa*, there is no evidence of the establishment of any immunity to disease beyond that of a more or less temporary immunity in the case of existing individual infections. Such a temporary relative immunity may be lost either as the result of disturbed relations between the infecting organism and the host or through the introduction of a new gonorrhœal infection.

With reference to *syphilis*, there is no evidence of an absolute and permanent immunity to syphilis unless it be that due to an existent infection. There is evidence to show that infection may exist without obvious manifestations of the disease. The immunity ensuing in such an infection may extend even to the degree of a commensal or symbiotic adaptation.

Wassermann Reaction.

The blood Wassermann reaction should not be used as a sole guide to the duration of a syphilitic infection. The blood Wassermann reaction should not be used as the sole evidence of the effectiveness of a particular drug or method of treatment. The blood Wassermann reaction should not be used as the sole evidence of "cure," no matter how many times repeated.

The complement-fixation test has not yet been shown to be of value in the diagnosis of doubtful cases of gonorrhœa. It is possible, however, that the precipitin test recently reported by Meader and Robinson may be of great value.

Venereal Disease Clinics.

The treatment of venereal diseases in the same institution with other diseases promises a better understanding on the part of young physicians, especially among interns and medical students, regarding the importance of these diseases and of the true relation established between them and other pathological conditions.

Education.

Fear should not be deliberately stressed as a deterrent. The element of fear should appear only to the extent that it is inherent in the presentation of the facts themselves. Any morbid tendencies resulting from such unavoidable fear should be corrected by positive and constructive teaching as to the prevention and cure of the disease.

Law Enforcement.

The establishment and maintenance of high standards of sex conduct is the best protection of public health from venereal diseases. Up to the level of the highest standards which can be sustained by public opinion, laws penalising the promotion of, and the indulgence in, illicit sex relations, constitute sound and practicable public health measures.

The establishment of reformatories with standard equipment for examination, classification, training, recreation, and parole is the most hopeful method of rehabilitating the old offender.

Psychological Aspect.

Although there is danger that a superficial and erroneous interpretation of the Freudian psychology in regard to the repression of the sex instinct may be detrimental to the successful development of the programme for the control of venereal disease, a more thorough-going, complete, and scientific interpretation, however, tends to aid such a programme, in that it places the emphasis upon the practical means for guiding the sex instinct into socially useful and constructive activities.

A detailed account of the proceedings is in course of preparation.

HOUSING NOTES.

The Government Building Scheme a Success.

IN spite of shortage of labour, and especially of skilled labour, very considerable progress has been made with the Government housing scheme during the last 12 months. The extent of the difficulty caused by the shortage of labour can be gauged from the following approximate comparative figures for England and Wales as to labour in the whole building trade:—

	1910.	*1911.*	*1914.*	*1920.*
Masons ...	73,012 ...	52,188 ...	34,381 ...	19,310
Slaters ...	9,706 ...	8,391 ...	4,154 ...	3,673
Plasterers ...	31,301 ...	25,082 ...	19,479 ...	12,067
Joiners ...	265,000 ...	208,995 ...	126,345 ...	108,199
Bricklayers	*115,995* ...	*102,752* ...	*73,671* ...	*53,063*

Steady progress has been made in private building, aided by the Government subsidy. In April last the grant was paid to the builders of two houses; now money is paid each week in respect of 300 completed houses; in nine months 4443 houses built by private builders have been completed. Under schemes of local authorities and public utility societies 11,122 houses have been completed, as compared with 348 in January last. Some 60,000 houses were commenced in 1920. The London region has up to the present exceeded all the others in the number of houses built and certificates applied for under the grant to private builders. These figures speak for themselves.

Building by Direct Labour.

The Ministry of Health has required the Metropolitan Borough Council of Poplar to accept the lowest tender for housing work rather than build by direct labour at a slightly higher cost. Much is to be said in favour of the Ministry's decision. There is perhaps a likelihood, if building by direct labour is carried out by a municipal corporation, for the workmen to make demands which would not receive the support of the general public; men working for a municipal council are at times apt to think they can impose conditions which a private contractor would not entertain. This is one of the weaknesses of local government; a councillor's seat of course depends on his retaining the suffrages of his constituency, and a section in his ward at times obtains an undue ascendancy in voting power. It is often stated that building by direct labour has very considerable advantages over building by ordinary tender; in several instances within the writer's knowledge direct labour has not been the only factor in the problem which has rendered such a course advisable. The authority has, through the energetic action of one or more of its members and officials, taken advantage of offers to obtain building materials at favourable prices when the opportunity presented itself, although they were not requiring such materials for immediate use. This is, of course, an argument for granting chairmen of committees reasonable executive powers. But it is also well known that a private contractor can usually buy much cheaper than a public body; unless a public conscience is awakened among the commercial members of the community generally this state of affairs will continue.

Houses Built of Concrete.

No subject has been of greater interest to the public in connexion with building than the use of alternative new methods of construction. Cement concrete is the material which seems to the layman to be the most obvious substitute for brick. H.M. Office of Works has obtained the sanction of the Richmond (Surrey) Town Council to erect in concrete a number of houses in connexion with the municipal housing scheme: Pattinson's process will be employed. This patent shuttering system provides a hollow concrete wall with 4-inch inner and outer casings and a $1\frac{3}{4}$-inch cavity; houses of a similar type are in the course of erection in Bedford. Although this form of construction cannot be condemned on the ground of instability, to produce a satisfactory structure much depends on the careful mixing of the materials in correct proportions; the complete filling of the shuttering requires careful workmanship and close supervision. H.M. Office of Works provides a working foreman who has had experience of the making of houses by this method; when he has imparted his knowledge to one or more of the workmen engaged in the erection of these concrete houses he passes on to another area where his services are needed. The Building Board appointed by the Scientific Industrial and Research Society is carrying out experiments on a site allotted at East Acton for practical research as to the best and most economical means of erecting cement concrete houses. It would seem that the committee has formed the interim conclusion that wooden shuttering enabling a cavity wall with iron ties to be built constitutes a practical proposition. It is doubtful if anybody is in a position to compare houses built of cement concrete with those built of brick; the stability of both the concrete and brick depends in a large measure, if not entirely, on the care and skill with which the foundations are laid. If more or less superficial cracks appear in the concrete walls these can be patched up. As the cement houses built for the Richmond housing scheme are to be covered with rough cast the addition of more of this material will prevent any trouble arising from cracks. Even in houses constructed of brick an unsightly appearance caused by aqueous vapour in the air condensing on the walls (water of condensation) is only too frequently found; by adding a proportion of coke-breeze to the material used to make the inner wall of the concrete houses it is expected that in this particular these houses will compare very favourably with the usual house built of brick; if the inner wall is finished with plaster instead of cement an additional safeguard against water of condensation is provided. A builder who in 1870 erected at Folkestone on the lower sea-front a crescent of 14 houses built entirely of cement concrete claims that concrete houses cannot be equalled for warmth in winter, coolness in summer, dryness, and being sound-proof by any brick house of the same age: he holds that their solidity increases each year with their age, as shown by the condition of the walls when workmen have to cut openings in them to make alterations. The walls were 14 inches thick and built entirely with unskilled labour—not a bricklayer was employed on the job. H.M. Office of Works does not claim that it costs less to build a house in concrete than brick; the great scarcity of bricklayers, however, demands that if housing schemes are to be completed within a reasonable time the houses must be constructed by some such process as that mentioned above. Although stonemasons hold that the laying of concrete blocks is within their scope, it is usual to employ bricklayers for this purpose. To build houses of concrete blocks does not solve the problem arising out of scarcity of bricklayers; in the shuttering process much of the work can be done by unskilled labour. Ex-Service men out of a job can therefore be employed.

Pisé de Terre (Rammed Earth) Houses.

Where walls cannot be built as quickly or cheaply in brick or stone, pisé de terre serves. For this material to be an economical substitute for brick or stone a suitable material must be available at the site; shuttering and tools of an approved type must be used; the work must be well thought out beforehand so that it can be carried out quickly; lastly, the labour for hand ramming must be cheap or power ramming must be substituted. For building soundly the foundations must be solid; above all, the walls must be protected from damp, above and below, from rain, and from accidental water; effective protection must be provided against attack by rats and other vermin. As regards material, anything which will bind into a footpath which will keep clean in both wet and dry weather will make a good pisé wall. Unfortunately the builders of some of the mud cottages erected within recent years in some parts of England have not always been so fortunate as to select suitable materials. Any material or mixture of materials which has not been proved should be subjected to a pressure test by a competent expert. The great disadvantage of mud walls is that water once let into a wall will almost certainly bring it down. Protection against rain is afforded by using a waterproof solution such as silicate of soda to mix the material, or by spreading a waterproof coat on the external surface; damp-courses are necessary not only at the base of the wall but at the top and under all window sills. As regards cost, in ordinary circumstances in view of the present price of labour no economy would be effected by erecting pisé walls in place of brick unless some efficient mechanical means were used for ramming instead of ordinary hand labour.

Timber-framed Cottages.

Timber-framed cottages are being erected under the housing scheme of the Bradfield Rural District Council. The foundations are brickwork on cement concrete. The walls above the level of the damp-course are made up of timber frames, to the outer side of which felt and weather-boarding are fastened; the inner surface is plastered. The contract price for a pair of three-bedroomed houses, a ground floor of which includes a living-room, parlour, scullery and wash-house, and a barn, together with a well, paths, and fencing, is £1355.

Bermondsey Borough Council v. *Heath, Brook, and Sneath.*

A case of considerable importance to local public health and housing committees has been decided by Mr. H. T. Waddy, the magistrate at the Tower Bridge police-court. It goes to show that local authorities need have no fear of being unable to recover the cost they incur in making houses reasonably fit for human habitation if the owners fail to comply with the notices served upon them. The Bermondsey Council took proceedings against the owners of property in the borough to recover the expenditure incurred by the council in making the property reasonably fit for human habitation under Section 28 of the Housing and Town Planning Act, 1919, the work having been carried out by the council after the owners had failed to do so within the time specified in the notice served upon them under that section. The defendants were concerned with 550 houses which they owned or managed and kept a small staff of workmen permanently employed in attending to their properties. Even under the pressure of statutory notices (76 intimations of work to be done were served under the Public Health Acts between Jan. 1st and April 23rd, 1920, in addition to some 39 notices later, including 28 under the Housing and Town Planning, &c., Act, 1919) the defendants never had more than 22 men engaged at any given time. The magistrate considered that if the defendants had chosen to obtain the services of further workmen they could have done so, and seeing that the local authority, when they took in hand themselves the work of the five houses which were the subject of the action, completed the whole of the work in 15 or 16 days, the period of 21 days stipulated in the notices as the time within which the work was to be completed was on the whole a reasonable time.

ROUMANIA.

(FROM OUR OWN CORRESPONDENT.)

Insanity in the Balkan States.

RECENT statistics show that the number of registered cases of insanity is steadily increasing year by year in all the Balkan States. This increase is generally supposed to be largely due to the war and to the accumulation of chronic cases dismissed from asylums for want of accommodation. It is pointed out in a report dealing with the subject that the science of eugenics must play a very important rôle in the prophylaxis of insanity, and should be carefully studied. When national eugenics become practical politics, the problem of the prevention of insanity will have been largely solved. A Bulgarian neurologist has proposed the sterilisation of degenerates as a means of checking the increase of insanity and degeneracy. Expression of his views has given rise to considerable discussion; the chief superintendent of the hospitals and asylums stigmatised the method as inhuman and inefficacious. He advocated the segregation of degenerates in special colonies, as practised in Sweden; in this way they are prevented from propagating children, and cannot exercise a bad influence on the community.

Mercuric Oxycyanide Powders Instead of Quinine.

A nurse in Professor J. Lovrich's department of the obstetrical clinic at the University of Budapest recently made the mistake of putting 30 mercuric oxycyanide powders into medicine cases instead of as many quinine powders. At the same time a fever patient in one of the gynæcological wards required a dose of quinine; her nurse took one of these powders from the quinine box and administered it; the unfortunate patient died four days later. Both nurses were placed under arrest.

Infectious Pneumonia in Cattle.

In Poland cases of infectious pneumonia have occurred in cattle, infection coming from the Eastern border. Several cases were observed in the neighbourhood of Vilna, but every precaution was taken; the Hungarian frontier was closed against cattle, and numerous veterinary surgeons were sent thither with strict orders to kill every suspected animal, for if the epidemic entered the country about 80 per cent. of cattle would probably be lost. The last two oriental cattle plagues in Hungary occurred in 1871 and 1882, and both were very disastrous. In Bulgaria an outbreak of this disease was checked early in 1914.

The Spread of Venereal Diseases in Budapest.

An institution has been established by the State police where food, work, and shelter are provided for women coming from the provinces; in this way hundreds have been saved from prostitution. Housing conditions render it impossible to extend the scope of surveillance work at present, but whenever possible women who are found unwilling to earn a wage except by prostitution are liable to punishment and transportation from the capital. The venereal hospitals are crowded; daily reports are furnished, giving the numbers of vacant beds, but the latter are immediately filled. The spread of venereal diseases is shown by the following numbers. During police raids on cafés, cabarets, &c., on Nov. 13th 51 women were arrested, of whom 21 were found to be infected; on the 20th, of 25 women arrested 14 required treatment; on the 21st 37 were arrested, of whom 27 had been ill. The authorities are entirely unable to check the rapid spread of secret prostitution. The building of a large new venereal hospital has long been discussed; the Government has promised financial support, and the city of Budapest has granted free ground for the site, but the present expense of building stands in the way of this much-needed means of dealing with a very serious question.

Protection of Children from Alcoholism.

Dr. Doczy, President of the Budapest Order of Good Templars, referring in a recent address to abortion, premature birth, and infant mortality caused by alcoholism in parents, said that the giving of alcohol to

children even in very small doses caused chronic general and organic disturbances. In order to avoid the alcoholisation of infants nurses should be forbidden any alcoholic drinks. Children hereditarily disposed to alcoholism should, if possible, be segregated from their families; homes for the protection of children should make definite provision for the care of the young families of habitual drinkers.

Dec. 20th, 1920.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

The Yellow Cross.

As the matter has excited interest outside this country, I am sending you further details of the Yellow Cross insurance scheme. The events leading up to its formation were as follows. The problem of the general practitioner had been for some time a matter of much discussion in this country, but through the effects of the legislation of the last few years it became a burning one, since the number of possible private patients for the general practitioner was being constantly cut down. An ever-increasing number of people were made more or less compulsory members of the Krankenkasse, or sickness insurance institute, by law. Whilst formerly only manual labourers, artisans, factory hands, &c., had to become members of these institutes, later on the membership was extended also to people earning higher wages. It was originally intended to provide for medical help and sick pay in case of illness, which generally involved a loss of earnings. By the pressure on other classes of population, paid by the month, to become members of the Krankenkasse, these were taken away from the general practitioner. This was bad for the doctor, but also not satisfactory to the insured person, because our system of sickness insurance does not permit free choice of doctor, but allows the patients to attend only those doctors appointed by the Krankenkasse. During the last two years persons without independent means earning anything up to 96,000 kronen a year, have become entitled to free medical aid, remedies, and sick pay from the Krankenkasse, and many have availed themselves of these facilities. Within the last few months endeavours have been made to form a sickness insurance institute for civil servants. and negotiations are even now going on between the Government and the medical organisations with this object. The latter desire to break the prevailing system of appointed doctors and to introduce the system of free choice in order that the pecuniary advantages of these schemes shall be shared by all doctors. However, a voluntary society, the Yellow Cross, founded two years ago to insure persons of the middle classes against sickness, is now conducted on lines worked out by Hofrat Blaschke, a well-known actuary, and apparently reconciles the needs of the public and the profession more successfully than the State schemes. The professional and business classes are not seriously inconvenienced by an occasional illness of short duration; but an illness involving large expenses, such as an operation, or tuberculosis, is a real menace to them, for the fees of surgeons and the cost of nursing homes and sanatoriums are at present very high. An operation followed by two weeks' treatment in a home may cost up to 12–15,000 kronen, or about 10–25 per cent. of the year's income.

Insurance against Operations and Tuberculosis.

The Yellow Cross has managed to secure the principle of free choice of doctors by adopting the rules laid down in the English National Insurance Act of 1911, which says that any practitioner desiring so may be placed on the list of doctors working under this Act, and that the patient may choose his doctor from amongst the names on the list. The Yellow Cross at present insures its members against only two contingencies—surgical operation of any kind, on the one hand, and tuberculosis, alone among medical conditions, on the other. In case of such an illness the patient chooses his doctor and his sanatorium, arranges as to costs, and he gets his expenses refunded by the Yellow Cross up to the sum insured by him. If, however, the costs are less than the insured amount only the actual costs are refunded; if they amount to more the patient has to find the balance. The unit of insurance is 3000 kronen for any operation, 2500 kronen for tuberculosis; the premium is 6 kronen a month, covering both insurances; 3 kronen a month against an operation only. These premiums are less than half of the ordinary premium paid by members of the Krankenkasse, who get sick pay of 10 kronen a day, but have to rely on the appointed doctor and have to go to a general hospital for operation. The units of 3000 kronen (operation) 2500 (tuberculosis) may be increased up to five times that sum by payment of adequately multiplied premiums. Only such operations are covered by the premiums which cost, according to the minimum fee list of the Vienna Medical Council, at least 600 kronen (so that minor surgery is excluded). A list is issued giving the sum that is payable in the event of any one of the numerous specified operations which are covered by the premium. A number of major operations are given herewith, as examples, together with the sums which are insured by payment of the simple premium.

	Kronen.		Kronen.
Mastoid operation	1300	Cancer of the larynx with removal	3000
Enucleation of the eye ...	1000	Thyroidectomy	2000
Removal of hæmorrhoids	1300	Amputation of the mamma	1600
Appendicectomy	1800		
Obstetric operations ...	1200–2000		

It will be understood that these are only the units and that a doubled or trebled premium will insure for a higher amount in exact proportion. At the present time three units suffice to cover all expenses connected with an appendix, kidney, or mastoid operation in one of our second-class private sanatoriums. As regards tuberculosis, a treble unit will no doubt meet the expenses of a stay in a home for about two months. The insured sum is not to cover all expenses, but to form a substantial help.

The Coöperation of Banks and Businesses.

As regards the possibilities of meeting the financial requirements of the Yellow Cross, actuarial investigations have shown that a membership of at least 10,000 members would be necessary if the association were to rely only on its own income. But by means of re-insurance with the two biggest insurance companies —a private one and an official (State) insurance company —the risks of the association have become almost nil. A special feature is the opportunity for collective insurance by corporations, banks, schools, industrial concerns, &c., of their members against tuberculosis alone or operations alone, if a minimum of 100 persons is insured by them. If a number of annual premiums are paid in advance certain discounts are allowed. The Union of Specialists of Vienna, with a membership of about 550, has joined the Yellow Cross insurance against tuberculosis. Each member pays a yearly premium of 24 kronen to his union, which in its turn arranges payment with the Yellow Cross. The Medical Sickness Club of Vienna has insured its 1200 members against operation. At present the number of persons insured in the Yellow Cross, which has recently changed its name and is in future to be known as "Krankenschutz" (protection against illness), amounts only to 2600, but the membership has increased very considerably during 1920. Up to now sums amounting to 50,000 kronen have been paid out, being equal to about 50 per cent. of the premiums received last year. Taking into consideration the difficulties with which the association had to grapple, since its aims are distinctly opposed to those of the now defunct social-democratic government, it is no wonder that its expansion has not been greater. But the advantages offered by this scheme are now becoming clear.

Within the last few weeks it has been found necessary to take certain precautions when accepting candidates for insurance. Persons applying for insurance against tuberculosis must submit to a medical examination by a doctor appointed by the association, whilst those applying for insurance against an operation have to

produce a certificate of health from their regular medical adviser. When corporations join the Yellow Cross collectively certificates or examination of their members are not insisted on. The medical organisations in Vienna have asked their members to point out to their patients the advantages of insurance in the Krankenschutz, and the movement is expected to have important developments.

Dec. 31st, 1920.

URBAN VITAL STATISTICS.

(Week ended Dec. 25th, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality, which had been 13·2, 12·9, and 15·3 in the three preceding weeks, fell to 15·1 per 1000. In London, with a population of nearly 4½ million persons, the death-rate was 15·3, or 0·7 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 6·5 in Darlington, 7·4 in Ipswich, and 8·0 in Enfield, to 23·0 in Southport, 23·9 in Exeter, and 24·2 in Middlesbrough. The principal epidemic diseases caused 216 deaths, which corresponded to an annual rate of 0·6 per 1000, and comprised 79 from infantile diarrhœa, 64 from diphtheria, 34 from measles, 20 from scarlet fever, 16 from whooping-cough, and 3 from enteric fever. Measles caused a death-rate of 2·8 in Walsall and 2·9 in Middlesbrough. There were 4780 cases of scarlet fever and 2547 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 4994 and 2654 respectively at the end of the previous week. The causes of 41 of the 5149 deaths in the 96 towns were uncertified, of which 8 were registered in Birmingham and 3 each in Southend-on-Sea and Barrow-in-Furness.

Scottish Towns.—In the 16 largest Scottish towns, with an aggregate population estimated at nearly 2½ million persons, the annual rate of mortality, which had been 13·5, 15·2, and 16·1 in the three preceding weeks, further rose to 16·2 per 1000. The 338 deaths in Glasgow corresponded to an annual rate of 15·8 per 1000, and included 7 from whooping-cough, 5 from diphtheria, 4 from scarlet fever, 3 from infantile diarrhœa, and 1 each from enteric fever and small-pox. The 116 deaths in Edinburgh were equal to a rate of 17·7 per 1000, and included 4 from measles and 2 from diphtheria.

Irish Towns.—The 141 deaths in Dublin corresponded to an annual rate of 17·7, or 2·5 per 1000 below that recorded in the previous week, and included 6 from infantile diarrhœa. The 136 deaths in Belfast were equal to a rate of 17·2 per 1000, and included 3 from infantile diarrhœa, 2 from diphtheria, and 1 from scarlet fever.

(Week ended Jan. 1st, 1921.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality, which had been 12·9, 15·3, and 15·1 in the three preceding weeks, rose to 16·6 per 1000. In London, with a population of nearly 4½ million persons, the death-rate was 16·5, or 1·2 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 7·9 in Ilford, 8·1 in Oxford, and 8·3 in East Ham, to 24·8 in Sunderland, 27·1 in Hastings, and 27·7 in Bath. The principal epidemic diseases caused 249 deaths, which corresponded to an annual rate of 0·7 per 1000, and comprised 96 from infantile diarrhœa, 63 from diphtheria, 34 from measles, 33 from whooping-cough, 17 from scarlet fever, and 6 from enteric fever. Measles caused a death-rate of 1·1 in Newcastle-on-Tyne, 1·3 in Warrington, and 2·5 in Middlesbrough, and whooping-cough of 1·4 in Sunderland. There were 4817 cases of scarlet fever, 2642 of diphtheria, and 1 of small-pox under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 4780, 2547, and 0 respectively at the end of the previous week. The causes of 45 of the 5679 deaths in the 96 towns were uncertified, of which 11 were registered in Birmingham, 6 in Liverpool, 5 in London, and 3 in Gateshead.

Scottish Towns.—In the 16 largest Scottish towns, with an aggregate population estimated at nearly 2½ million persons, the annual rate of mortality, which had increased from 13·5 to 16·2 in the four preceding weeks, further rose to 18·4 per 1000. The 375 deaths in Glasgow corresponded to an annual rate of 17·6 per 1000, and included 12 from whooping-cough, 5 from infantile diarrhœa, 3 from diphtheria, 2 from small-pox, and 1 from scarlet fever. The 126 deaths in Edinburgh were equal to a rate of 19·3 per 1000, and included 2 from diphtheria, and 1 each from measles, whooping-cough, and infantile diarrhœa.

Irish Towns.—The 214 deaths in Dublin corresponded to an annual rate of 26·9, or 9·2 per 1000 above that recorded in the previous week, and included 2 from infantile diarrhœa, and 1 each from enteric fever, whooping-cough, and diphtheria. The 166 deaths in Belfast were equal to a rate of 21·0 per 1000, and included 2 each from scarlet fever, whooping-cough, and infantile diarrhœa.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lieut. (D) M. F. Hopson to be Surgeon Lieutenant Commander (D).

ROYAL ARMY MEDICAL CORPS.

Major G. W. Heron relinquishes the acting rank of Colonel.

Capt. S. Arnott is restored to the establishment.

Temp. Capt. W. W. Forbes relinquishes the acting rank of Major.

The undermentioned Lieutenants (temporary Captains) to be Captains: D. J. H. Jones, T. H. Twigg, J. K. Holland, K. Masson, and R. S. Strachan.

J. A. B. Sim to be temporary Lieutenant.

Officers relinquishing their commissions:—Temp. Maj. W. A. Brend retains the rank of Major. Temporary Captains retaining the rank of Captain: O. V. Burrows, F. H. Cleveland, J. A. MacSweeny, S. Wigglesworth, and W. Kingdon. Temp. Lieut. D. M. O'Dwyer retains the rank of Lieutenant.

SPECIAL RESERVE OF OFFICERS.

Lieut.-Col. J. H. P. Graham relinquishes his commission and retains the rank of Lieutenant-Colonel.

TERRITORIAL FORCE.

Major M. J. Mahoney resigns his commission and retains the rank of Major.

Capt. G. R. E. G. Mackay resigns his commission and is granted the rank of Major.

Capts. J. Paton and P. J. Watkin (late R.A.M.C.) to be Captains.

Capt. L. R. G. de Granville to be Lieutenant and to relinquish the rank of Captain.

Capts. J. Ramsay and G. B. Gill to be Majors.

Capt. A. E. Richmond to be Adjutant of the R.A.M.C. School of Instruction, West Lancs. Division (T.F.).

H. M. Brown (late Devon Regiment) to be Lieutenant.

Supernumerary for Service with the Officers Training Corps.—Temp. Capt. V. G. L. Fielden resigns his commission and retains the rank of Captain.

TERRITORIAL FORCE RESERVE.

Capt. E. G. Annis resigns his commission and is granted the rank of Major.

ROYAL AIR FORCE.

The undermentioned Flight Lieutenants are granted the honorary rank of Squadron Leader: J. Keenan, J. N. Macdonald, and J. Valerie.

ORDER OF THE BRITISH EMPIRE.

Surg.-Cmdr. T. W. Myles, R.N., has been appointed a Commander of the Civil Division of the Most Excellent Order of the British Empire; and Surg.-Lieut. J. D. Bangay, R.N., an Officer of the Civil Division of the Order.

TERRITORIAL FORCE DECORATION.

The King has conferred the Territorial Force Decoration upon the following officers:—Major J. F. Christie, attached 4th Battalion, Gordon Highlanders; Major A. C. Turner, attached 49th (West Riding) Divisional Engineers; Major E. L. Anderson, 2nd West Lancs. Field Ambulance; Major J. W. Mackenzie, 1st Highland Mounted Brigade Field Ambulance; Major A. H. Horsfall, attached Royal Herbert Hospital, Woolwich; Major J. M. Bowie, attached 9th Battalion, Royal Scots; Lieut.-Col. A. W. Mackintosh, 1st Scottish General Hospital; Lieut.-Col. (Brevet Col.) A. Napier, Honorary Surgeon-Colonel (Honorary Surgeon-Colonel, retired, Volunteers), 4th Scottish General Hospital (retired).

DEATHS IN THE SERVICES.

Lieut.-Col. Richard Henderson Castor (late I.M.S.), at his residence at Croydon, aged 59. He retired from the Service in November, 1920, after 33 years' active work. He served with the Wuntho Expedition in Burma in 1891, was mentioned in despatches, and received the medal and clasp. He was an authority on tropical diseases, and established infant welfare work in Burma, in recognition of which he received the Kaisar-i-Hind medal. Col. Castor joined the Ministry of Pensions medical staff, and was appointed to Croydon.

WEYMOUTH HOSPITALS: PROPOSED AMALGAMATION NEGATIVED.—The committees of the Weymouth hospitals have suggested the advantages of the amalgamation of these charities. A public meeting was recently held at Weymouth to consider the matter, the mayor presiding. Eventually the proposition in favour of the amalgamation was defeated. The result of the vote has been conveyed to the joint committee of the hospitals, and it will be for them to decide what further action shall be taken in the matter.

Correspondence.

"Audi alteram partem."

THE BRITISH COMMITTEE FOR AIDING MEN OF LETTERS AND SCIENCE IN RUSSIA.

To the Editor of THE LANCET.

SIR,—We have recently been able to get some direct communication from men of science and men of letters in North Russia. Their condition is one of great privation and limitation. They share in the consequences of the almost complete economic exhaustion of Russia; like most people in that country, they are ill-clad, underfed, and short of such physical necessities as make life tolerable. Nevertheless, a certain amount of scientific research and some literary work still goes on. The Bolsheviks were at first regardless and even in some cases hostile to these intellectual workers, but the Bolshevik Government has apparently come to realise something of the importance of scientific and literary work to the community, and the remnant (for deaths among them have been very numerous) of these people, the flower of the mental life of Russia, has now been gathered together into two special rationing organisations which ensure at least the bare necessities of life for them.

These organisations have their headquarters in two buildings known as the House of Science and the House of Literature and Art. Under the former we note such great names as those of Pavlov, the physiologist and Nobel prizeman; Karpinsky, the geologist; Borodin, the botanist; Belopolsky, the astronomer; Tagantzev, the criminologist; Oldenburg, the orientalist and permanent secretary of the Petrograd Academy of Science, Koni, Bechterev, Latishev, Morozov, and many others familiar to the whole scientific world. Several of these scientific men have been interviewed and affairs discussed with them, particularly as to whether anything could be done to help them. There were many matters in which it would be possible to assist them, but upon one in particular they laid stress. Their thought and work is greatly impeded by the fact that they have seen practically no European books or publications since the Revolution. This is an inconvenience amounting to real intellectual distress. In the hope that this condition may be relieved by an appeal to British scientific workers, Professor Oldenburg formed a small committee and made a comprehensive list of books and publications needed by the intellectual community in Russia if it is to keep alive and abreast of the rest of the world.

It is, of course, necessary to be assured that any aid of this kind provided for literary and scientific men in Russia would reach its destination. The Bolshevik Government in Moscow, the Russian trade delegations in Reval and London, and our own authorities have therefore been consulted, and it would appear that there will be no obstacles to the transmission of this needed material to the House of Science and the House of Literature and Art. It can be got through by special facilities even under present conditions.

Many of the publications named in the Oldenburg list will have to be bought, the costs of transmission will be considerable, and accordingly the undersigned have formed themselves into a small committee for the collection and administration of a fund for the supply of scientific and literary publications, and possibly if the amount subscribed permits of it, of other necessities, to these Russian savants and men of letters. We hope to work in close association with the Royal Society and other leading learned societies in this matter. The British Science Guild has kindly granted the committee permission to use its address.

We appeal for subscriptions and ask that cheques should be made out to the Treasurer, C. Hagberg Wright, LL.D., and sent to the British Committee for Aiding Men of Letters and Science in Russia, British Science Guild Offices, 6, John-street, Adelphi, London, W.C. 2.—We are, Sir, yours faithfully,

MONTAGU OF BEAULIEU.	BERNARD PARES.
ERNEST BARKER,	ARTHUR SCHUSTER.
E. P. CATHCART,	C. S. SHERRINGTON,
A. S. EDDINGTON,	A. E. SHIPLEY,
I. GOLLANCZ,	H. G. WELLS,
R. A. GREGORY,	A. SMITH WOODWARD,
P. CHALMERS MITCHELL,	C. HAGBERG WRIGHT.

Dec. 30th, 1920.

ORAL SEPSIS.

To the Editor of THE LANCET.

SIR,—It would be unfair to British medicine, and more especially to the dental section of it, were Dr. W. Bertram Watson's paper on this subject in your last issue to pass unchallenged. His contention that medical men in this country are now learning from America the dangers of oral sepsis and the value of radiography in its diagnosis is grossly unfair. To consider oral sepsis first. The first great stir on the subject was made by Dr. W. Hunter in 1898, and immediately the subject was taken up by dental surgeons and others in this country, as is proved by the steady stream of papers from 1898 on. At the Royal Dental Hospital the gospel of the clean mouth has been taught at least since 1904, when instructions were issued by the hospital authorities that no conservative work should be undertaken until the mouth had been rendered free of sepsis by the removal of septic teeth. At the Great Ormond Street Children's Hospital, to my own knowledge, the radical removal of all septic teeth was instituted in 1902, and a post-graduate lecture on the subject was delivered the same year. In American literature you will find practically no mention of the subject down to 1910 or even later. The earliest reference to the subject in the bibliography attached to Rosenow's paper on Elective Localisation, referred to by Dr. Watson, is 1912. It is quite true that American doctors have recently taken up the subject with a characteristic vigour and thoroughness.

With regard to dental radiography, Rontgen rays were discovered in 1895. In England Mr. A. C. Cossar designed a special dental tube in 1896, and in the same year Mr. C. A. Clark, a dentist, took up the subject and has practised it as a specialty ever since. In 1908 Mr. Clark was appointed radiographer to the X ray department at the Royal Dental Hospital. In the Odontological Society's transactions for April, 1900, there is a paper by Mr. Goldie, of Edinburgh, in which there is a beautiful reproduction of a dental radiogram showing rarefaction of the bone due to periodontal trouble. The fact that increased transradiancy means rarefaction of bone is pointed out and has been the common knowledge of medical radiologists almost since the inception of the science. Had Dr. Watson known of this paper or been familiar with radiographic findings he would not have had to wait until 1919 to learn this very elementary fact at the Mayo clinic.

It is not my intention to criticise the scientific value of Dr. Watson's paper. He admits that his experience in the subject is "small," and were his knowledge of its history larger, he would have realised that it was the doctors in this country rather than the dentists who were so long in grasping the importance of this condition.—I am, Sir, yours faithfully,

London, W., Jan. 3rd, 1921. STANLEY COLYER, M.D.

X RAY TREATMENT OF RINGWORM.

To the Editor of THE LANCET.

SIR,—The letter of Dr. James Neal, Joint Secretary of the Medical Defence Union, is one of great interest to all those who are concerned with the X ray treatment of ringworm, but it would perhaps be as well to point out, as doubtless Dr. Neal knows, that in spite of the violent reaction which at times occurs no ultimate harm results to the child's head of hair, although at the time possibly some slight irritation, readily allayed by soothing applications, is experienced. At the same time I might

point out the great importance of after-treatment of children who have been X rayed. In the course of treatment of ringworm of the scalp, in my experience by no means does epilation occur so satisfactorily as is commonly thought; it is the case over again of the old fairy tales, so many of which end "they married and lived happily ever afterwards." After X ray treatment for ringworm all the children should be seen at regular intervals in order to ensure that the hair on the rims, which appear to be unavoidably left in some instances, does not contain ringworm, and if it does that the ringworm hair should be epilated. Unfortunately, not only are rims left, but the actual patches of ringworm do not always epilate satisfactorily.

My letter does not in any way militate against the treatment of ringworm of the scalp by X rays. As a result of actual carrying out of the treatment of a considerable number of cases myself, and seeing the children shortly after other workers have X rayed the children's heads, I consider that at least one in ten of the children require constant care and epilation. This view, it would seem, was also held by Dr. R. H. Crowley when medical superintendent for the Bradford Education Committee; many will agree that the application of X rays facilitates epilation, even in these obstinate cases.

I am, Sir, yours faithfully,

Richmond, Surrey, Jan. 1st, 1921. C. W. HUTT.

To the Editor of THE LANCET.

SIR,—Referring to the warning and recommendation of the Medical Defence Union in your issue of this date, it may interest your readers to know that 12 or more years ago I had printed a number of forms, of which I enclose one, with the idea of getting parents of children with ringworm of the head to sign one before undertaking treatment. These forms I copied from one in use in a London hospital. Not once did I succeed in getting any parent to sign and the mere suggestion of danger frightened the parents into a refusal to allow X ray treatment. Our methods were bad in those days, and I had several permanent alopecias to my discredit. In fact, so worried was I over the subject that for five years I absolutely refused to touch ringworm of the scalp with X rays, no matter what fee was offered. The Bradford Education Committee then approached me with a view to treating the Bradford school children. Taking my courage in both hands, I started to work out a technique which I could rely upon and in a few months I succeeded. In the past four years I have treated over 600 cases without a single failure to get the hair out or for it to come in again, and last year I treated 175 cases, and the average time from commencement of treatment to readmission to school was 23 days. Every child treated is inspected by me six months later to see the final results. Every case has the *whole* head epilated by the Kienboch method.

In my opinion no one who has not qualified in the bitter school of experience in all classes of X ray work, and it takes years, ought to attempt the X ray treatment of tinea tonsurans, which is the most exact and exacting form of X ray treatment there is. I do not believe, as Dr. Neal says, that minimum doses ever produce violent dermatitis. Such is produced only by over-dosage and usually by too soft a tube. Personally I work with a small milliampèrage (0·5 ma.) for two reasons: first, because the tube remains more constant, and, secondly, because the margin for error is larger than when using a larger current. I use a light anode tungsten target tube, as I find heavy anode tubes are apt to give out occluded gases and become soft. I always use a filter of 0·2 mm. of aluminium, and I use pastiles for *every* exposure—i.e., five for each case. I also use the Lovibond tintometer as devised by Dr. Dudley Corbett and have found it to be absolutely correct. When working with "Sabouraud and Noiré's pastilles" I give 1 B. dose, but when using "London pastiles" I give 4/5 B., as I find there is 1/5 B. difference between them. It is very important to get accustomed to one class of pastile and to stick to it. There are other tintometers on the market and several are far from reliable. Of one make I purchased two, one for my own private use and one for the Royal Infirmary. Neither was correct, and more astonishing still, there was 100 per cent. difference between the two, although made by the same firm. In conclusion, I should say that I never use a tube emitting rays less than 1 Benoist.

With this technique thoroughly standardised I never have the slightest nervousness as to results. Of course, it is important to watch that the child does not move its head during treatment otherwise an improper overlap might occur. This is best achieved by a watchful nurse, as retentive appliances frighten the children.

I am, Sir, yours faithfully,

Bradford, Jan. 1st, 1921. WILLIAM MITCHELL, M.B.

[ENCLOSURE.]

Bradford Royal Infirmary.

CHILDREN SUFFERING FROM RINGWORM.

I quite understand that there is a very slight risk in carrying out the X ray treatment of Ringworm, namely, that the re-growth of the hair may be incomplete, and I am prepared to take that risk, realising that the hospital authorities are doing their best for my child.

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THE RADIOGRAPHY OF THE CHEST.

To the Editor of THE LANCET.

SIR,—I should like to remark that the adjective "antiquated" still means "grown old" or "out of fashion." In neither sense can it be applied to the X ray classification adopted in my book on pulmonary tubercle reviewed in THE LANCET, Jan. 1st (p. 29). Obviously it is either a misconception or a misprint. Furthermore, the classification is not difficult to understand provided that the reader is gifted with ordinary application and an average intelligence.

You also find fault with me, because, in the first chapter, when describing the pulmonary reticulum, I have not rested content with the results of Dunham's investigations. Must I assume that you are ignorant of the vast amount of work which has been done to elucidate this problem? Facts and arguments, which, I think, are irrefutable, are given in order to prove that *both vessels and bronchi* must participate in the production of the tracery of the *normal* lung. Concerning the rest of the criticism I have nothing to add.

I am, Sir, yours faithfully,

WALKER OVEREND, M.D., &c.

St. Leonards-on-Sea, Jan. 1st, 1921.

PULMONARY TUBERCULOSIS:

CLASSIFICATION OR SUMMARY (?)

To the Editor of THE LANCET.

SIR,—It is an open secret that the Health Ministry has under consideration the classification of tuberculous cases for administrative purposes, and much informal discussion has taken place, some of it resulting in interesting papers in the journals.[1] There appears to be some confusion in the minds of some who are called upon to deal with tuberculosis statistics. Classification in these cases is required for two distinct reasons—administrative and clinical respectively. In the first case we require the statistics as a guide to the prevalence of such cases in the locality, and to their probable future and needs; in the second as a guide to progress and the effects of treatment.

Much more detail is needed for the second purpose; but all the details are not suitable for use in classification. By far the most convenient method is to employ a simple classification based upon a few outstanding facts and to reserve other details for periodical summaries. If these are put into abbreviated or symbolic form and recorded on a card index comparison at different periods is easy, whereas if we merely record "Much improved" or some similar comparative

[1] See inter alia THE LANCET, Oct. 30th, p. 901. Tubercle, November, 1919, December, 1920.

statement such comparisons are impossible. Four groups of facts may be conveniently symbolised to record progress: systemic disturbance, respiratory disturbance, complications present, and capacity for exercise or work. The first three may be recorded in one of three degrees, the last in hours per day. All these should be subordinate to the anatomical condition, which is more permanent and better suited as a basis for classification.

I am, Sir, yours faithfully,

F. R. WALTERS, M.D.,

Tuberculosis Officer to the Surrey County Council.

Farnham, Surrey, Jan. 1st, 1921.

ANNUAL MEETING OF FELLOWS AND MEMBERS AT THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

To the Editor of THE LANCET.

SIR,—On reading over recent issues of your journal I was very much surprised that no account of the above meeting, which was held on Thursday, Nov. 18th, 1920, at 3 P.M., appeared in the issue of Nov. 27th. Since I became a member of the Society of Members—some 18 years ago—I have never failed to read an interesting and fairly full account of the proceedings at the annual meeting at our College in the issue of THE LANCET immediately succeeding that function. Owing to this omission, perhaps you will not object to my informing you that the two resolutions brought forward on behalf of the society were both carried nem. con. We therefore trust that, as last year, they will be sympathetically considered by a committee of the Council specially detailed for the purpose.

In the annual report of the College for 1919–20 it is stated that "the Council have no power under the charters of the College to nominate Members to represent the interests of general practitioners in the management of College affairs," and that after several meetings "it was decided that it was not desirable to apply for a new charter for the purpose." At the above-mentioned annual meeting the representatives of the Society of Members entered an emphatic protest against the first of these statements, as we believe that the Council have such power at the present time, but are (as a whole) unwilling to exercise it. As regards the second statement, history records that the Council have had no compunction in applying for charters in order to obtain increased powers for themselves or to deprive the Members of nearly all their ancient privileges. Their diffidence in this case is really due to the knowledge that an application for a charter will provide an excellent opportunity for the Society to defend and enlarge the position of the Members, of which we shall take full advantage.

I am, Sir, yours faithfully,

SIDNEY C. LAWRENCE,

Hon. Secretary, Society of Members of the Royal College of Surgeons of England.

61, Wellington-road, Bush Hill Park, Enfield, Jan. 2nd, 1921.

DONATIONS AND BEQUESTS.—A contribution of £7000 has been received by the Royal Portsmouth Hospital from the Prince of Wales's National Relief Fund. This amount represents the deficit incurred during the four years of war. Only the deficit for 1920 remains to be made good in order to render the institution free from debt.—The Ashton District Infirmary has received a gift of £6300 from the Prince of Wales's Fund.—The board of management of the Manchester Royal Infirmary have received during the past month legacies and donations amounting to £6052.—The employees of Messrs. A. Hall and Co., Ltd., shipbuilders, Aberdeen, contributed on behalf of the Hospital Fund during the past year the sum of £41 16*s*. The firm gave a like amount, making a total of £83 12*s*. The following allocations were made: Aberdeen Royal Infirmary, £50; Aberdeen District Nursing Association, £4 10*s*.; Aberdeen Eye Institution, £7 10*s*.; Royal Aberdeen Hospital for Sick Children, £20; Aberdeen Asylum for the Blind, £1 12*s*.—The annual parish of Keith-hall collection for the Aberdeen Infirmary for 1920 amounted to £30 18*s*. 6*d*.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Six Hunterian lectures on the Principles of Human Craniology, illustrated by specimens and preparations, will be delivered in the theatre of the College in Lincoln's Inn-fields by Professor Arthur Keith in the last fortnight in January. The lectures will be given at 5 P.M. on Mondays, Wednesdays, and Fridays, beginning on Jan. 17th. The syllabus is as follows: I. The beginnings of craniology; its aims; the skull considered from a functional point of view; the cranial cavity, its growth and shape; cranial form as a mark of race. II. The manner in which the occipital and mastoid regions become modified in passing from infancy to old age; changes due to disordered growth; the base of the skull and the manner in which the face is hafted to it. III. The purposes served by the various bones of the face; the mechanism of facial growth; prognathism; the face as a mark of race. IV. The significance of certain modifications effected in the skull under various conditions of disordered growth (acromegaly, achondroplasia, osteogenesis imperfecta, cretinism, &c.). V. Conditions which regulate the shape of the skull as illustrated by anomalous crania (scaphocephaly, acrocephaly, microcephaly, hydrocephaly, and other less common abnormal states). VI. The nature of the changes which are taking place in the skulls of peoples living under modern conditions of life.

UNIVERSITY OF LONDON.—At the last meeting of the Senate it was decided to institute a University Chair of Anatomy tenable at St. Bartholomew's Hospital Medical School. At the same meeting it was also decided that a candidate for the Diploma in Psychological Medicine who has passed the examination for M.D. in Branch III., Mental Diseases and Psychology, be exempted from examination in psychology and psychological medicine, and be awarded the Diploma in Psychological Medicine on satisfying the examiners for the Diploma in Part A (i.), Anatomy, Histology, and Physiology of the Nervous System, and Part B (i.), Neurology.

The Council of the Royal College of Surgeons of England has appointed Mr. Frederic F. Burghard to be its representative on the Senate in the place of Sir Charles Ballance, who has resigned. Dr. F. Ransom (London (R.F.H.) School of Medicine for Women) has been appointed professor of pharmacology in the University of London.

Studentships and Scholarships: The Senate invites applications for the Graham Scholarship in Pathology of the value of £400 per annum for two years, founded under the will of the late Dr. Charles Graham to enable a young man to continue his pathological researches and at the same time to secure his services to the school of advanced medical studies connected with University College Hospital as a teacher under the direction of the professor of pathology. Intending applicants who desire fuller information of the conditions on which the scholarship will be held may call personally on the professor of pathology, University College Hospital Medical School, London, W.C.1.

Lectures: Under the scheme for the exchange of lecturers between Holland and England the University has invited the undermentioned Dutch lecturers to give one lecture each on a medical subject, in English, during the present session: Dr. W. Einthoven, professor of physiology, Leyden; Dr. C. M. Ariens Kappers, director of "Herseninstituut," Amsterdam; Dr. J. K. A. Wertheim Salomonson, professor of neurology, Amsterdam; Dr. Bolk, professor of anatomy, Amsterdam; Dr. J. Boeke, professor of embryology and histology, Utrecht; Dr. Hamburger, professor of physiology, Groningen. The first lecture, entitled "Some Considerations on Tonus and Reflexes," will be delivered by Dr. Wertheim Salomonson at the rooms of the Royal Society of Medicine on Monday, Jan. 17th, at 5 P.M., when the chair will be taken by the Vice-Chancellor.

A course of eight lectures on the Physiology of the Embryo, Fœtus, and Newly-born will be given at Guy's Hospital by Dr. M. S. Pembrey, professor of physiology in the University, on Thursdays at 4.30 P.M., beginning on Jan. 13th. The lectures are addressed to advanced students and to others interested in the subject, and are recognised as advanced lectures which a candidate at the B.Sc. Honours Examination may name for part of his examination. Admission is free for all these lectures without ticket.

On Feb. 3rd, 10th, and 17th, at 5.30 P.M., at University College, Gower-street, Professor J. E. G. de Montmorency, LL.B., will lecture on Mother-right and Matriarchy.

In the Psychological Department, King's College, Strand, Dr. William Brown will give a course of ten lectures on Psychopathology on Tuesdays, at 5.30 P.M., beginning on Tuesday, Jan. 18th. These lectures are open to medical students and medical practitioners without fee or ticket.

ROYAL SOCIETY OF ARTS.—**The Aldred lecture** will be delivered by Dr. C. S. Myers, F.R.S., on Wednesday, Jan. 12th, at 8 P.M., on Industrial Fatigue, at the House of the Society, John-street, Adelphi, W.C.

COLONIAL MEDICAL SERVICE.—**Sir James Kingston** Fowler will deliver an address entitled "The Colonial Medical Service" at the Middlesex Hospital Medical School on Thursday, Jan. 20th, at 3 P.M., when the Earl of Athlone will preside.

SOCIETY FOR THE STUDY OF INEBRIETY.—**The next** meeting of the society will be held in the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, London, W., on Tuesday, Jan. 11th, at 4 P.M., when Dr. H. M. Vernon will open a discussion on Alcohol and Industrial Efficiency. Each member and associate is at liberty to introduce visitors.

HARVEIAN SOCIETY OF LONDON.—**The annual** general meeting will be held on Thursday, Jan. 13th, at the rooms of the Medical Society of London, 11, Chandos-street, W. The Presidential Address will be delivered by Dr. William Hill on the Great Advances in the Investigation and Treatment of Diseases of the Œsophagus during the Present Century.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—A special general meeting will take place in the society's rooms at the West London Hospital on Friday, Jan. 14th, at 8.30 P.M., in order to discuss the Interim Report on the future provision of medical and allied services recently drawn up for the Ministry of Health. Medical practitioners are cordially invited to attend and take part in the discussion.

TIVERTON HOSPITAL AND PAYING PATIENTS.—**At** a meeting of the subscribers of the Tiverton (Devon) Hospital held last week it was decided to alter the rules to enable a charge to be made to in-patients.

IRISH HOSPITAL GRANTS.—**The Chief Secretary for** Ireland has appointed the following committee to advise on the distribution of the portion applicable to Ireland of the National Relief Fund grant towards the war deficits of voluntary hospitals: The Master of the Rolls in Ireland (chairman); Sir Edward Coey Bigger, Mr. Stephen Grehan, Sir James Johnston, Mr. T. B. Lillis, Sir Henry McLaughlin, Mrs. McMordie, and Mr. Laurence Waldron.

ROYAL MEDICAL BENEVOLENT FUND GUILD.—A serious effort is being made to raise more money to help in educating the children of medical men who have died or lost their health before they have been able to make adequate provision for their dependents. The matinée held at His Majesty's Theatre and a dance held on Dec. 23rd last at a house in Wimpole-street were both very successful. The owner of this house generously bore all the expenses, including the band and refreshments. Tickets at a guinea each were all sold very quickly. Other doctors who possess suitable houses either in London or in the provincial towns are asked to make a similar effort and thus give their patients an opportunity of materially assisting this charity. Anybody who is willing to lend his house for the purpose of a dance is invited to communicate with the secretary of the Guild at 19, Portland-place, London, W.1.

NATIONAL ASSOCIATION FOR THE PREVENTION OF INFANT MORTALITY.—A course of advanced lectures on Infant Care, for infant welfare workers, teachers, mothers, &c., will be held at Morley Hall, George-street, Hanover-square, London, W., on Mondays, at 6 P.M., from Jan. 17th to April 11th. The lecturers include: Mr. Eardley Holland, Mr. Gordon Ley, Dr. Flora Shepherd, Dr. Eric Pritchard, Dr. H. C. Cameron, Mr. M. S. Mayou, Mr. Philip Franklin, Mr. C. F. Peyton Baly, Dr. S. Roodhouse Gloyne, Dr. J. Lawson Dick, Dr. Maurice Craig, and Dr. Harold Waller. Fee for the whole course of 12 lectures, 7*s.* 6*d.*; for one lecture, 1*s.*—A special course of lectures on Infantile Care for health visitors, nurses, midwives, school teachers, voluntary infant welfare workers, committees of nursing associations, &c., will be held in the Lecture Theatre of the Victoria Institute, Worcester, by kind permission of the Higher Education Subcommittee, on Saturday afternoons, from Feb. 12th to March 12th inclusive. Lectures will be given each day, from 2 to 3 P.M., and from 4 to 5 P.M.—Under the joint auspices of this association and the National Society of Day Nurseries a course of elementary lectures on Infant Care, especially intended for creche nurses and probationers, will be held at the Essex Hall, Essex-street, Strand, London, W.C., on Thursdays, at 7.30 P.M., from Jan. 20th to April 14th. The lecture fee for each of these two courses is 10*s.* each person for the course and 1*s.* 6*d.* for a single lecture. Tickets should be obtained in advance from Miss Halford, secretary, National Association for the Prevention of Infant Mortality, 4 and 5, Tavistock-square, London, W.C.1.

THE FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—**At a general Council meeting held** on Dec. 10th, 1920, the following resolutions were adopted and referred to the newly-appointed executive committee:—

1. That the executive committee be requested to consider the advisability and practicability of appointing a general organiser of post-graduate medicine, with full powers to take such action as he thinks fit in order to promote the facilities for post-graduate education in the United Kingdom for practitioners registered in this country and for visitors from Dominions and foreign countries. And that the Government be approached with a view to obtaining an annual grant.
2. That the executive committee be requested to report at an early date upon the possibility of providing a hospital solely for post-graduate study and the possibility of obtaining a grant in aid.
3. That it is desirable to obtain as early as possible suitable accommodation for post-graduates attending courses of instruction.

The first meeting of the executive committee will be held at 1, Wimpole-street, London, W., on Tuesday, Jan. 11th, at 5.30 P.M.

MEDICAL SOCIETY OF LONDON.—**The syllabus of** the second half of the 148th session has just been issued. On Monday, Jan. 10th, at 8.30 P.M., a pathological evening will be held; specimens and demonstrations by Dr. B. H. Spilsbury, Dr. E. H. Kettle, Dr. E. H. Shaw, Dr. Carnegie Dickson, Dr. A. Fleming, Dr. John Matthews, Dr. Robert Knox, Dr. Crofton Atkins, Dr. Harrison Orton, and Mr. C. A. Clark, M.R.C.S., L.D.S. On Jan. 24th, at 8.30 P.M., a paper on Multiple Neuritis will be read by Dr. Anthony Feiling, followed by one on Handprints in Mongolian and other Imbeciles by Dr. F. J. Crookshank. On Feb. 14th a discussion on Skin Disease, its relation to Internal Disorder, will be opened by Sir James Galloway, and on Feb. 28th a discussion on the Chemical Estimation of Gastric Function will be introduced by Dr. J. H. Ryffel. On March 14th Sir Henry Gauvain will speak on Non-operative Treatment of Surgical Tuberculosis. The Lettsomian lectures on Surgery of the Lung and Pleura will be delivered on Mondays, Feb. 7th and 21st, and March 7th, at 9 P.M., by Mr. George E. Gask. The annual dinner will be held at the Wharncliffe Rooms, Hotel Great Central, on Tuesday, March 8th, at 7 P.M. for 7.30 P.M. The annual oration will be delivered on May 23rd by Lord Dawson of Penn.

BIRMINGHAM MEDICAL PSYCHOLOGICAL SOCIETY.—This society has recently been formed with a membership limited to medical men. The subscription is 5*s.* per annum, and meetings are held monthly on Wednesdays at 4.15 P.M. The next meeting will take place on Jan. 12th, when Dr. G. J. Branson will read a paper on the Neurotic State. Subsequent meetings will be notified in our Medical Diary. The officers for the session are Dr. A. W. Moore (President); Dr. H. E. McCready (Vice-President); Dr. E. Gordon Anderson (Treasurer). The secretary is Dr. Ernest W. Jones, The Manor House, Aldridge, from whom further information may be obtained.

BIRMINGHAM CHILDREN'S HOSPITAL.—**The authorities** of the Children's Hospital are about to make an important innovation to meet the needs of those patients, who, whilst above the so-called hospital class, are yet unable to meet the expenses of private nursing homes and operation fees. The new hospital, erected as a memorial to King Edward VII., has 100 empty beds which cannot be used owing to the financial condition of the institution. As a beginning it is proposed to set apart a private ward of six cots for paying patients. The hospital will make a charge of £3 3*s.* per week, which represents the actual cost to the hospital of food, drugs, and dressings. In addition there will be a fee for medical or surgical treatment, the amount of which will be a matter of arrangement between a member of the staff and the patient's friends. But it is stipulated that this fee shall not exceed a maximum of £3 3*s.* per week, or, as an alternative, that £21 shall be an inclusive fee, however long the patient may stay in the hospital. For some time the advisability of making a maintenance charge for all patients has been discussed and opinion has been divided on the principle involved. It was felt that it would be more satisfactory if contributions from patients generally could be avoided. Many special hospitals have arranged for payments by patients, but children's hospitals with one or two exceptions have considered the proposal impracticable. Another aspect of the subject has reference to the number of patients drawn from outside districts; of 100 children treated, 78 resided in Birmingham and 22 in other districts. The committee of the hospital has intimated to the local authorities its willingness to negotiate with public health departments with a view to the resources of the hospital and its out-patient department being made available for infant welfare schemes. Whilst most anxious to meet the demand for extra beds, the committee points out that the income of the hospital does not meet the expenditure by some £5000 a year, and therefore this work for local authorities can in future be done only at their expense.

MEDICAL OFFICERS OF HEALTH AND WAR BONUS.—At the last meeting of the Radstock (Somerset) urban district council it was reported that Dr. J. E. Scales, the medical officer of health, and Mr. G. Pearson, the clerk, had resigned their appointments in consequence of the refusal of the council to grant them a war bonus, as recommended in the latest circular of the Ministry of Health.

HOSPITAL CONDITIONS IN MANCHESTER DISTRICT.—The Salford Royal Hospital will probably be faced with a deficit of £10,000, which represents the post-war increase in the cost of running the hospital. The Manchester Children's Hospital at Pendlebury has a deficit of £11,993 on its income and expenditure for 1919, and its bank overdraft stands at £16,500. Already one ward of 30 beds has been closed, and if generous help is not forthcoming immediately more beds must remain unoccupied, in spite of the large waiting list of cases.

PAYING PATIENTS IN POOR-LAW HOSPITALS.—The Manchester board of guardians have decided to provide, from Feb. 1st, limited accommodation—about 200 beds—at their hospitals at Nell Lane, Withington, and Crumpsal, at a charge of 3 guineas weekly inclusive. This charge, it is believed, will cover the cost of the maintenance and treatment of patients. The scheme proposes to utilise the vacant accommodation for patients who cannot be treated at once in the overcrowded voluntary hospitals or who are unable to pay the high fees charged in private nursing homes, and the fees of consulting physicians and surgeons for attendance. It is expected that most of the patients will be emergency surgical cases requiring immediate treatment, the conditions and treatment being the same as in a private hospital. There is a staff of visiting specialists, physicians and surgeons, as well as a visiting gynæcologist, aurist, laryngologist, radiologist, and ophthalmic surgeon.

BRISTOL ROYAL INFIRMARY.—The chairman of the Bristol Royal Infirmary committee, Alderman Frank Sheppard, recently addressed a meeting representative of the employees of the principal firms of the city and appealed for increased support for the infirmary. There is an adverse balance of over £50,000, and expenditure is so largely in excess of income that the committee is faced by the prospect of having to close a number of beds. It is possible that this may be in some measure averted by the Ministry of Pensions, which has offered to use a certain number of beds. Plans for the collection of payments by patients are also under consideration.

ANNUAL RETURNS OF MATERNITY AND INFANTS' HOMES.—In May, 1920, the Minister of Health asked for certain information to be furnished annually to him by the authorities of maternity homes and hospitals on the one hand, and of infants' and children's homes and hospitals on the other. The period then contemplated ended with March 31st, but as the information can be more readily supplied for the calendar than for the financial year, the particuars are in future to be given for the year ending Dec. 31st. It will be remembered that *immediate* information is asked for in regard to every case of maternal mortality occurring in an institution or due to illness contracted there, every case of notified puerperal fever, and every death from gastro-enteritis or epidemic diarrhœa in an infants' hospital.

TREATMENT OF VENEREAL DISEASE IN DUNDEE.—There were 11 applicants for the post, to which Dr. A. C. Profeit was appointed, of medical officer under Dundee's scheme for the treatment of venereal disease. Dr. Profeit, who is an M.D. and D.P.H. of Aberdeen University, is at present in private practice in Ballater, Aberdeenshire, where he holds the post of medical officer of health. From 1900 to 1903 he was in charge of the venereal wards at the Royal Victoria Hospital, Netley, and for several months in 1904 he was in charge of wards in the military hospital at Shorncliffe.

ABERDEEN ORTHOPÆDIC CENTRE.—At a meeting of the Aberdeen Rotary Club held on Dec. 30th, 1920, Dr. Middleton Connon gave an account of the work being done under the auspices of the Ministry of Pensions at the Aberdeen Orthopædic Clinic and Limb-Fitting Centre. Aberdeen was the first city in the British Isles to have an out-patient orthopædic centre. There are now in Scotland four similar centres with a number of subsidiary ones. Aberdeen is the centre for the northern area, said Dr. Connon, which includes all the counties and islands north of and including Kincardineshire, to the Orkneys and Shetlands. The staff includes two assistant medical officers, 26 masseuses, one plaster worker, one qualified surgical nurse, and four clerks. There are at present 623 men under treatment. In the area served there were 670 limbless men. All the eight men in the limb-fitting shop are discharged disabled men wearing artificial limbs.

DIPLOMA OF PSYCHOLOGICAL MEDICINE.—Should sufficient applicants be forthcoming, a third course of lectures and demonstrations for Part I. of the Diploma will be held at the Maudsley Hospital, beginning in April. Intending applicants should communicate at once with the director, Pathological Laboratory, Maudsley Hospital, Denmark Hill, London, S.E. 5.

LITERARY INTELLIGENCE.—The Oxford Medical Publications announce the early publication of a new issue (Vol. I. of the Fourth Series) of Guy's Hospital Reports, under the general editorship of Dr. Arthur F. Hurst, assisted by an editorial committee. The first number will contain articles by Sir W. Hale-White, Dr. G. Newton Pitt, Dr. Hurst, Dr. J. A. Ryle, Mr. R. P. Rowlands, Mr. W. M. Mollinson, and others.—The new edition of the "Literary Year Book" for 1921 will be issued on Jan. 10th by its new proprietor and editor, Mr. Mark Meredith, from the "Year Book" Offices, 67, Dale-street, Liverpool.

Obituary.

THOMAS H. LIVINGSTONE, M.D., F.R.C.S. EDIN.,

HONORARY SURGEON, THROAT, NOSE, AND EAR HOSPITAL, NEWCASTLE-UPON-TYNE.

THE death occurred on Dec. 25th, 1920, in Newcastle-upon-Tyne, of Dr. Thomas Hillhouse Livingstone. He was the younger son of the late Dr. Thomas Livingstone, of Stanhope, in Weardale, who was for over 30 years in practice in Stanhope and who occupied a very prominent position in the public and social life of the dale. Dr. T. H. Livingstone was educated at Wolsingham Grammar School and Uppingham, and proceeded to Edinburgh University, where he graduated M.B., Ch.B., in 1899. He filled the post of house surgeon at Rochdale Infirmary and later carried on his father's practice at Stanhope with much acceptance till 1903. He then returned to Edinburgh for a period and took the M.D. and F.R.C.S. degrees, afterwards settling in practice in Newcastle. He became honorary surgeon to the Hospital for Sick Children and retired from this position in 1912, when he was appointed surgeon to the Throat, Nose, and Ear Hospital. During later years he confined his work entirely to this special branch, to which he had always had a leaning, and in it he had the satisfaction of being able to do much good work. He held a commission in the Territorial Force, and was mobilised at the outbreak of the war. When under orders to proceed to France he was taken seriously ill and was admitted to the 1st Northern General Hospital with the malady which eventually proved fatal. Partially recovering from this illness, he was attached to the ear and throat department of the 1st Northern General Hospital. In 1914 he was made Vice-President of the Ear, Nose, and Throat Section at the annual meeting of the British Medical Association.

By nature Dr. Livingstone was of a most refined and gentle disposition, possessed in a marked degree of innate courtesy and kindness to others. He was much attached to his native dale, and occasional visits from busy Newcastle to his old quiet home in the country always gave him the greatest pleasure. To his many friends both in Weardale and Newcastle his death at the early age of 43 has come as a great grief. His remains were interred in the old churchyard of Stanhope.

THE LATE DR. ROBERT SLATER MAIR.—Dr. Mair, who died on Dec. 21st, 1920, at the ripe age of 95, was a well-known medical practitioner in Bayswater, physician to the Persian Embassy, and for many years certifying factory surgeon for the City of London. Educated at Edinburgh and Glasgow, he graduated at St. Andrews in 1850 and almost immediately went to India, where for 17 years he practised in Madras, for which city he was also deputy coroner. Dr. Mair, who became a Fellow of the Royal College of Surgeons, Edinburgh, in 1863, was the author of a medical guide for Anglo-Europeans, which was published in 1873, and a book on the management of children in India, published two years later.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, Jan. 11th.

SECTION OF PSYCHIATRY: at 8.30 P.M.

Paper:

Dr. Morowoka: The Morbid Conditions of the Choroid Plexus in Mental Disease (illustrated by epidiascope).

Thursday, Jan. 13th.

SECTION OF NEUROLOGY: at 8.30 P.M.

Informal Meeting for free discussion (tea, coffee, smoking).

N.B.—As this is the first of these evenings it is hoped that Members will endeavour to attend and, if possible, exhibit objects of interest.

Friday, Jan. 14th.

CLINICAL SECTION: at 5.30 P.M. (Cases at 5 P.M.)

Cases: The following will be shown by—

Mr. W. E. Tanner: Case of Osteochondritis Deformans.

Mr. W. H. Ogilvie and Mr. Massie: Two Cases of Fracture-Dislocation of the Ankle.

Mr. Bonar: Impacted Fracture—Separation of Lower Epiphysis of the Femur.

Other cases will be shown.

SECTION OF OPHTHALMOLOGY: at 8.30 P.M. (Cases at 8 P.M.)

Cases and Exhibits:

Mr. G. Winfield Roll: Foreign Body Retained in the Eye for Many Years.

Mr. B. T. Lang: A New Scotometer.

Papers:

Dr. Ransom Pickard: Variations in the Size of the Physiological Cup, and their Relation to Glaucoma.

Mr. B. T. Lang: Scotometry.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY, Jan. 10th.—8.30 P.M., Pathological Evening. Specimens and Demonstrations by Dr. B. H. Spilsbury, Dr. E. H. Kettle, Dr. E. H. Shaw, Dr. C. Dickson, Dr. A. Fleming, Dr. J. Matthews, Dr. R. Knox, Dr. C. Atkins, Dr. H. Orton, and Mr. C. A. Clark.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

WEDNESDAY, Jan. 12th.—8 P.M., Aldred Lecture:—Dr. C. S. Myers: Industrial Fatigue.

HARVEIAN SOCIETY OF LONDON, at the Medical Society's Rooms, 11, Chandos-street, Cavendish-square, W.

THURSDAY, Jan. 13th.—Annual General Meeting. Presidential Address:—Dr. W. Hill: The Great Advances in the Investigation and Treatment of Diseases of the Œsophagus during the Present Century. General Conversazione.

BIRMINGHAM MEDICAL PSYCHOLOGICAL SOCIETY.

WEDNESDAY, Jan. 12th.—4.15 P.M., Dr. G. J. Branson: The Neurotic State.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

MONDAY, Jan. 10th.—12.15 P.M., Dr. Burnford: Pathological Demonstration. 2 P.M., Mr. B. Harman: Eye Department. Dr. Morton: X Ray Department. 5 P.M., Lecture:—Dr. A. Saunders: The Clinical Investigation of Cases with Symptoms of Digestive Trouble.

TUESDAY.—12 noon, Mr. T. Gray: Demonstration of Fractures. 2.30 P.M., Mr. Baldwin: Operations. Mr. Addison: Visit to Surgical Wards. 5 P.M., Clinical Lecture I.:—Mr. Banks Davis.

WEDNESDAY.—10 A.M., Mr. MacDonald: Genito-Urinary Department. 12 noon, Mr. Sinclair: Surgical Diseases of the Abdomen. 2 P.M., Mr. Gibb: Eye Department. 5 P.M., Lecture I.:—Dr. Simson: Obstetric Emergencies.

THURSDAY.—2 P.M., Dr. G. Stewart: Medical Out-patients. Mr. D. Armour: Operations. Mr. Baldwin: Orthopædic Department. 5 P.M., Special Lecture:—Dr. S. Taylor: Some Points in Connexion with the Circulatory System (open to all medical practitioners).

FRIDAY.—9.30 A.M., Dr. G. Stewart: Neurological Demonstration. 10 A.M., Dr. McDougal: Electrical Department. 2 P.M., Mr. Banks Davis: Diseases of the Throat, Nose, and Ear. 5 P.M., Lecture I.:—Mr. Baldwin: Appendicitis.

SATURDAY.—10 A.M., Dr. A. Saunders: Medical Diseases of Children. 12 noon, Mr. Sinclair: Surgical Diseases of the Abdomen. 2 P.M., Dr. Owen: Medical Out-patients.

Daily:—10 A.M. Ward Visits. 2 P.M., In-patient, Out-patient Clinics and Operations.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, Jan. 13th.—4 P.M., Lecture:—Mr. T. Higgins: The Significance of Limp.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.

THURSDAY, Jan. 13th.—6 P.M., Chesterfield Lecture:—Dr. J. L. Bunch: Drug Eruptions.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

Christmas Lectures on the Haunts of Life, by Prof. J. A. Thomson:—

TUESDAY, Jan. 11th.—3 P.M., Lecture VI.:—The Mastery of the Air.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

TUESDAY, Jan. 11th.—4.30 P.M., Lecture:—Sir William Thorburn: Surgical Treatment of Neuralgia.

SALFORD ROYAL HOSPITAL AND ANCOATS HOSPITAL POST-GRADUATE DEMONSTRATIONS, at the two Hospitals alternately.

THURSDAY, Jan. 13th.—4.30 P.M., Mr. Diggle: Diagnosis and Treatment of Carcinoma of the Larynx. (At Ancoats Hospital.)

ST. MARY'S HOSPITALS, MANCHESTER, POST-GRADUATE LECTURE, at Whitworth-street West Branch.

FRIDAY, Jan. 14th.—4.30 P.M., Dr. Donald: Bladder Symptoms in Gynæcological Practice.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

EVANS, G. I., M.B., Ch.B. Oxon., has been appointed Resident Medical Officer to the King Edward VII. Hospital for Officers, Grosvenor-crescent.

GARSTANG, W., M.B., Ch.B. Vict., Certifying Surgeon under the Factory and Workshop Acts for Hucknall.

GODDARD, C. E., M.B., B.S. Lond., Medical Officer of Health for Harrow, in addition to Wembley.

LITTLE, P. M., M.B., Ch.B. Edin., M.C., House Surgeon to the Royal Devon and Exeter Hospital.

M'GIBBON, J., M.B., F.R.C.P.E., Professor of Midwifery in the University of Johannesburg, South Africa.

MOORE, C. A., M.S. Lond., Ch.M., F.R.C.S., Surgeon to the Bristol General Hospital.

MURRAY, J., M.B., B.Ch. R.U.I., Medical Officer of Health to the Leadgate U.D. Council.

ROGERS, Sir LEONARD, Stuart Mill Lecturer in Tropical Medicine at the London (R.F.H.) School of Medicine for Women.

STIDSTON, C. A., M.D., B.S. Lond., Honorary Surgeon to the Wolverhampton and Staffordshire General Hospital.

THWAITE, B., M.B., B.S. Lond., Physician to Out-patients to the Birmingham and Midland Free Hospital for Sick Children.

Vacancies.

For further information refer to the advertisement columns.

Altrincham General Hospital, Cheshire.—H.S. £175.

Bath, Royal United Hospital.—H.S. and H.P. £150 each.

Birkenhead Education Committee.—Asst. Sch. M.O. £450.

Bradford Royal Infirmary.—Res. Surg. O. £250. H.S. £200.

Cardiff, King Edward VII. Hospital.—H.S. £200.

Cardiff, King Edward VII. Welsh National Memorial Association.—Med. Supt. at North Wales Sanatorium, near Denbigh. £500. Tuberc. P.'s. £500. Also Asst. Tuberc. P.'s. £300.

City of London Hospital for Diseases of the Chest, Victoria Park, E.—Res. M.O. £250.

Colonial Service.—M.O.'s for West African Medical Staff, Government Service in Malaya, East African Protectorates, West Indies (including British Guiana), Fiji, and the Western Pacific, &c.

Derby, Derbyshire Royal Infirmary.—Ven. Dis. O. £750.

Doncaster Royal Infirmary and Dispensary.—Sen. and Jun. Res. M.O.'s. £250 and £225.

Down District Asylum, Downpatrick.—Sen. and Jun. Asst. M.O.'s. £350 and £300.

Durban, Government Hospital.—Asst. M.O. £484.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—Res. M.O. £200.

Evelina Hospital for Children, Southwark, S.E.—Hon. P. to Out-patients.

Glamorgan County Council.—M.O. £700.

Hackney Metropolitan Borough.—M.O. 10s. per hour.

Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—Asst. Res. M.O. £150. Also H.P.'s.

Hospital for Women, Soho-square, W.—Hon. Radiologist.

Hull Royal Infirmary.—Asst. H.S. £150.

Ilford Urban District Council.—Female Asst. M.O.H. £400.

India, Countess of Dufferin Fund.—Three Med. Women. Rs. 350 per mensem.

Kirkburton, Storthes Hall Asylum, near Huddersfield.—Asst. M.O. £400.

Lincoln County Hospital.—Jun. H.S.—£150.

Liverpool Hospital for Children, Moreton, Birkenhead.—Jun. M.O. £250.

London County Mental Hospital Service.—Sixth Asst. M.O. £300. Also Clin. Assts. £200.

Macclesfield, Cheshire County Asylum, Parkside.—Asst. M.O. £350.

Manchester, Ancoats Hospital.—H.S. £150.

Manchester, Barnes Convalescent Hospital, Cheadle.—Res. M.O. £300.

Manchester Royal Infirmary.—Accident Room H.S. £200. Also Radiological Tutor in X ray Department. £50.

Metropolitan Hospital, Kingsland-road, E.—Cas. O. and Res. Anæsth. £120.

Middlesex County Council.—Asst. M.O. £500.

Newark Hospital and Dispensary.—Res. H.S. £200.

Newport, Mon., Royal Gwent Hospital.—Jun. Res. M.O. £180.

Nottingham General Hospital.—H.S. £200.

Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Asst. S.

Queen Mary's Hospital for the East End, E.—Hon. Dental S.

Royal Free Hospital Gray's Inn-road, W.C.—H.P. £50.

Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—Cas. O. £150. Also Res. H.P. £125.
South Eastern Hospital for Children, Sydenham, S.E.—Res. M.O. £150.
Southend-on-Sea County Borough.—Asst. M.O. £500.
Sheffield Royal Hospital.—Asst. Cas. O. £150.
Stoke-on-Trent, North Staffordshire Infirmary.—H.S. £200.
Taunton and Somerset Hospital.—Res. Asst. H.S.
Victoria Hospital for Children, Tite-street, Chelsea, S.W.—H.P. and H.S. £100.
Warrington Infirmary and Dispensary.—Jun. H.S. £200.
Wells Asylum, Somerset.—Asst. M.O. £300.
Western General Dispensary, Marylebone-road, N.W.—Res. H.S. £250.
West London Hospital, Hammersmith-road, W.—P. Also Hon. Obstetric Registrar.
Westminster Hospital (opposite Westminster Abbey).—H.P.
Wigan Education Committee.—Asst. Sch. M.O. £500.
Willesden Hospital.—Additions to Hon. Med. Staff.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Dalmellington and at Fishguard.

Births, Marriages, and Deaths.

DEATHS.

CASTOR.—On Dec. 30th, 1920, at his residence, Lodge-road, Croydon, from pneumonia, Lieutenant-Colonel Richard Henderson Castor, I.M.S., K.I.H., aged 59 years.
CRONIN.—On Dec. 30th, 1920, at his residence, Old Manor House, Clapham, S.W., Eugene Francis Cronin, M.D., M.R.C.S.
EVANS.—On Dec. 30th, 1920, at the Mental Hospital, Brentwood, George Evans, M.B., Medical Superintendent.
FRANKS.—On Dec. 31st, 1920, at Craiglands, Rowlands Gill, Emilie, beloved wife of Dr. Charles Franks.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

ALLEN, GEORGE, AND UNWIN, LTD., London.
Studies in Dreams. By Mrs. H. O. Arnold-Forster. Pp. 188. 8s. 6d.

BAILLIÈRE, TINDALL, AND COX, London.
The Sex Complex. By W. Blair Bell, M.D. 2nd ed. Pp. 251. 21s.
Pocket Anatomy. By C. H. Fagge, F.R.C.S. 8th ed. Pp. 313. 5s.
Aids to Pathology. By Harry Campbell, M.D. 4th ed. Pp. 248. 4s. 6d.
Organic Medical Chemicals (Synthetic and Natural). By M. Barrowcliffe, F.I.C., and F. H. Carr, F.I.C. Pp. xii.+331. 15s.

BELL, G., AND SONS, London.
Pocket Guide to the Chess Openings. By R. C. Griffith and J. H. White. Pp. 116. 3s. 6d.
Practical Biological Chemistry. By Prof. G. Bertrand and Mons. P. Thomas. Translated from the Third Edition by H. A. Colwell, M.B. Pp. 348.
The World of Sound. (Royal Institution Juvenile Lectures, 1919.) By Sir Wm. Bragg, F.R.S. Pp. 196. 6s.

CHAPMAN AND HALL, London. WILEY, J., AND SONS, New York.
Laboratory Manual of Organic Chemistry. By H. L. Fisher, Ph.D. Pp. 331. 12s. 6d.
A Text-book of Organic Chemistry. By A. F. Holleman. 5th ed. Pp. 642. 18s. 6d.

HEINEMANN, WILLIAM, London.
Gout. By L. J. Llewellyn, M.B. Lond. With a Section on Ocular Disease in the Gouty. By W. M. Beaumont. Pp. 469. 30s.
Diseases of the Throat, Nose, and Ear. By Dan McKenzie, M.D. Pp. 646. 42s.

HOEBER, PAUL B., New York.
Hygiene of Communicable Diseases. By F. M. Munson, M.D. Pp. 792. $5.50.

LANE, JOHN, London and New York.
Macedonia: A Plea for the Primitive. By A. Goff and H. A. Fawcett, M.R.C.S., D.P.H. Pp. 274. 21s.

LEWIS, H. K., AND CO., London.
A Guide to Anatomy for Students of Medical Gymnastics, Massage, and Medical Electricity. By E. D. Ewart. Pp. 301. 16s.
Syphilis and its Treatment, with Especial Reference to Syphilis of the Skin. By W. S. Fox, M.D. Cantab. Pp. viii.+195. 36s.
On Diseases of the Lungs and Pleuræ, including Tuberculosis and Mediastinal Growths. By Sir R. Douglas Powell, Bart., K.C.V.O., M.D. Lond., and P. Horton-Smith Hartley, C.V.O., M.D. Cantab, 6th ed. Pp. xx.+798. 42s.

LIPPINCOTT, J. B., COMPANY, Philadelphia and London.
Essentials of Medicine for Students, &c. By Charles P. Emerson, M.D. 4th ed. Pp. 401. 12s. 6d.
Scurvy, Past and Present. By A. F. Hess, M.D. Pp. 279. 18s.

NISBET AND CO., London.
Bolshevik Russia. By G. E. Reine, in collaboration with E. Luboff, LL.D. Pp. 192. 1s.

ROCKEFELLER INSTITUTE, New York.
Studies from the Rockefeller Institute for Medical Research Reprints. Vol. XXXIV. Pp. 612.

SPRINGER, JULIUS, Berlin.
Lehrbuch der Differentialdiagnose innerer Krankheiten. Von Professor Dr. M. Matthes. Pp. 621. M. 68.
Einfaches Pharmakologisches Praktikum für Mediziner. Von Prof. R. Magnus. Pp. 51. M. 17.

Notes, Short Comments, and Answers to Correspondents.

SOME PROBLEMS IN MARINE HYGIENE.[1]

WITH SPECIAL REFERENCE TO MERCHANT SHIPS.

BY SURGEON VICE-ADMIRAL SIR ROBERT HILL, K.C.M.G., C.B., C.V.O.,
MEDICAL DIRECTOR-GENERAL OF THE ROYAL NAVY.

II. WATER-SUPPLY OF SHIPS AND DISEASES OF SHIP LIFE.

The Water-supply of Ships.

THE important problem of water-supply is easily solved. Many diseases, ranging from simple outbreaks of diarrhœa to cholera, the typhoid group and the dysenteries, are classed as water-borne. Metallic poisoning and many parasitic intestinal worms are sometimes water-borne. It is essential to safeguard the drinking water-supply in a ship, where the main difficulty is that of storage. In old days rain-water was collected and stored in casks; in 1772 distillation was first used in the Royal Navy, and later iron tanks were employed for storage. In all ships the water-supply should be most liberal, as in the Royal Navy.

Regulations for supply.—The rules laid down in the Merchant Shipping Act and by the Board of Trade leave a wide margin of danger. Section 206 of the former merely states that "if the inspecting officer finds that the water has not been inspected, or to be deficient in quality, the ship shall be detained until the defects are remedied to his satisfaction." The regulations for supply of drinking-water in H.M. ships are much more stringent, and I cannot do better than give a brief description of them. The lowest limit of amount provided should be 10 gallons per head per day for all purposes, increased to 12 gallons in the tropics. The storage tanks are of iron, coated with a preparation known as rosbonite, and roughly of a capacity of 30,000 gallons for 1000 men. They should be so arranged, by means of a pipe connexion for attachment to the water-boat's hose, that water can be passed from these boats to the tanks without opening the manholes, and the manholes should not be situated in a sleeping or messing compartment. These manholes should be raised into a coaming to prevent soakage of wash-deck dirt into the storage tank.

Cleansing of tanks.—Tanks should be cleaned out every six months—in merchant ships at the end of each voyage—or when known pollution has occurred. This should be done by men specially inspected for disease by a medical officer; they should wear clean overalls and sterilised rubber boots, and the cleansing should be under the supervision of a medical officer or competent executive officer. From the storage tanks the water is pumped up to gravity tanks on the superstructure of the ship; these gravity tanks are made of galvanised steel plates, and it is recommended that they be fitted with raised hinged manholes for inspection purposes. Gravity tanks seldom require cleansing; from them the water is passed through galvanised pipes to the drinking or issuing tanks in various parts of the ships convenient for the men to draw the water off. They are covered-in tanks of a capacity of from 25 to 200 gallons. In the lids of these issuing tanks is an opening for filling, protected by a perforated metal disc and funnel-shaped guard. The branch pipe from the main should end a short distance from the funnel; the latter should be fitted with a metal cover. When the drinking supply in a ship is by distillation there is little danger, but it must be remembered that leakage of salt water through cracked condenser tubes is a grave source of pollution, especially if the water is from a harbour source. Distilled water is tested for the excessive presence of common salt by the engineers during the process of distillation. Only the purest sea-water should be used for distillation; polluted harbours and rivers should not be employed.

Dangers of shore supply.—When water is brought from the shore to a ship the strictest precautions must be taken against dangers arising, firstly, at its source on shore, and secondly, in the method of transport. Strict inquiries and inspection should be made, and if the source is in any way doubtful reports of analysis should be obtained. However pure the water may be at its source grave danger may occur in transport, which is usually carried out by water-boats. It should be required by all shipping companies that these boats be modern in type, consisting of vessels containing

[1] Being portions of a Chadwick Trust lecture delivered at Newcastle-upon-Tyne, Dec. 3rd, 1920.

steel tanks free of the vessel's side, with a space between to allow of inspection, and situated amidships well away from such sources of heat as the engine room aft and the pump room forward. They should have raised manholes on the top, with a coaming of at least 4½in., and with hinged water-tight cover. Canvas hoses for supply to ships are perhaps the best. No boat for the supply of drinking-water should carry water for boiler purposes as well. There should be general adoption of the special rules laid down by the Admiralty as regards the care of these boats and the cleanliness of their crews. As an example of danger arising even when the shore supply is above suspicion, this instance may be quoted. One of H.M. ships visited a certain island in the southern Indian Ocean where the shore water was very pure, but when the medical officer inspected the water-boat it was found to be of old rotten wood with unlined wooden tanks, into which sea-water leaked. When not in use the water-boat was moored in the harbour just where the town sewage was discharged.

Chlorination.—When all precautions are taken to ensure safety there is still an element of doubt in shore water; therefore chlorination is carried out in H.M. ships by regulation. This process is easily within the powers of any merchant ship, large or small, and should be adopted as a part of the Merchant Shipping Act. Chlorination is done simply by adding 30 gr. of chloride of lime to every hundred gallons of water when the tanks are being filled. This is best done by first making the requisite solution of chloride of lime and adding it to the water. The lime should be fresh and kept in amber-coloured air-tight bottles, in which manner it is supplied to H.M. ships; it rapidly loses its sterilising effect if exposed. For this reason chlorination is more efficient when use is made of liquid chlorine gas stored in cylinders; but this method has so far only been applied to the chlorination of town water-supplies. Filters should be regarded as a potential source of danger on board ship; they are frequently neglected, and have then been a means of pollution, for which reason they have been abandoned in H.M. ships.

Diseases Incidental to Ship Life.

Certain diseases appear more persistently on board ship than ashore owing to the environment of the seaman, to diet, and to climatic exposure.

Most of the common diseases from which seamen suffer are diseases of the respiratory system, including tuberculosis and influenza; overcrowding and inefficient ventilation are the causes and the means of spreading infection. Diseases directly due to faulty diet are scurvy and ship beri-beri. Diseases due to climate are numerous; malaria is pre-eminent, sunstroke or heat-stroke being a near second. Infectious and contagious diseases are very liable to spread and more difficult to control owing to the close proximity of individuals and the extreme difficulty of segregation on board ship. I propose only to deal with those diseases which will be materially affected by improvements in the construction of ships, pointing out some indications for preventive measures.

Tuberculosis.—In spite of all our modern improvements in ventilation and accommodation, this disease remains one of the chief causes of invaliding in the Royal Navy. It is unfortunate for comparison's sake that the only records available in the Merchant Service are death returns. The recent war has rendered both the Royal Navy and the mercantile records incomplete since the year 1914; it is hoped that both these will be available shortly, but they will contain abnormal returns owing to the war, and comparison will therefore be unfair. In the year 1914 the mercantile death returns under tuberculosis and phthisis amounted to 87 out of a total of 245,619 men serving, excluding fishermen. This does not sound a large number, but there must have been a large percentage of cases occurring besides those which terminated fatally. In the Royal Navy for 1914, with a total force of 158,300, there were 336 cases, with 269 invalidings and 42 deaths, the case invaliding and death ratios being 2·12, 1·69, and 0·26 per 1000 respectively, as compared with 2·35, 1·82, and 0·24, the ratios for the previous five years. These figures, if they do nothing else, show that much has yet to be done in construction to lessen the incidence. The environment of the seaman in the Mercantile Marine and in the Royal Navy must be improved. In the future ships must be constructed so that the men are given better accommodation, more natural light, and more natural ventilation, for however good artificial (or pumped) ventilation may be, it is never the same as pure fresh air.

Medical examinations.—Early recognition of the disease and prompt removal of cases from the ship will do much to diminish the incidence. Very careful recruiting is done for the Navy, quarterly examinations of men are carried out, at which weights are taken, and anything holding a suspicion of the disease is noted and the individual kept under observation and, if necessary, sent to hospital. Such measures are more difficult to undertake in the Mercantile Marine, but more could be done if shipping companies increased their medical staff ashore, and instigated a more rigorous examination of men signing on for voyages. Mercantile seamen dislike a too frequent medical examination, but this is a matter of that discipline and routine to which war service will have helped to accustom them.

Tropical diseases.—The best means of prevention of malaria on board is to construct mosquito-proofed ships for trading in malarious areas. This method is now adopted in all ships of the Royal Navy going to West Africa and Persian Gulf and other bad malarious areas; all ports and doorways are fitted with fine wire gauze, and it is recommended that shipping companies should supply similar fittings. Sunstroke and heat-stroke may be lessened by good awning provision, and the supply of some ice-making machine in ships going to tropical countries. Increased ventilation by wind-sails, wind-scoops, &c., will, of course, be essential.

Against infectious and contagious diseases in general, improved ventilation, better accommodation, and provision of adequate working facilities and latrine systems are the main preventive measures; but it is absolutely necessary that in all merchant ships some isolation space be provided where adequate temporary treatment can be given for such diseases until the case can be moved ashore; some means of steam disinfection should also be provided, as such means is now our main preventive in typhus fever. It is hoped that a simple means of steam disinfection applicable to any size of steamship will shortly be on the market, the inventor being an army medical officer. I am not at present free to describe this apparatus, as it is under trial.

Typhoid.—In addition to the precautions already named, I must mention the proved value of preventive inoculation against typhoid. Seafaring men proceeding to countries where this disease is common, such as the Eastern Mediterranean, India, and China, should be given facilities for inoculation, and its advantages should be urged upon them.

Small-pox.—Seamen are particularly exposed to small-pox in their service abroad; efficient vaccination should be one of the articles insisted upon when men are signing on for voyages abroad.

Venereal diseases.—These diseases may not be more rife amongst seafaring men than among the shore population, but in ships the treatment necessary for prevention and cure is almost nil, except, perhaps, in the largest ships. We in the Royal Navy have proved in the past that as good treatment can be given on board ship as on shore; and at present the most recent preventive and curative measures are being organised on board our ships. I would urge on the Shipping Federation and shipbuilding companies to see to it at once that such measures are installed in all merchant ships, or at any rate in those carrying a doctor. Every such ship should have an ablution cabinet or treatment centre. I can assure them that all possible help will be forthcoming from the Royal Navy. Lectures should be given by medical men to the officers and men of the Mercantile Service on this subject; and medical officers engaged by shipping companies should produce evidence of some special knowledge of these diseases and their treatment. The subject is too long for deep discussion here, but the responsibility of shipping companies extends to the provision of adequate treatment for their men when they go on shore at home and abroad. There must be no penalising, and free treatment, including drugs, should be supplied. Since it resumed its work at the termination of the war the Office Internationale d'Hygiène Publique has had under consideration the importance of the establishment and maintenance of venereal treatment centres, open to merchant sailors and watermen of all nationalities, in all the chief sea and river ports. Medical—and, if necessary, hospital—treatment and medical necessaries are all to be supplied gratuitously. The propaganda work now being carried on by the National Council for Combating Venereal Disease is ably furthering the useful preventive measures which the above office has been advocating for so many years. The Marine Department of the Board of Trade, the Ministry of Health, the Shipping Federation, and various shipping companies are now fully alive to the importance of this matter.

COLONIAL HEALTH REPORTS.

Cyprus.

IN the Government report for 1919–20 an improvement in the public health is recorded. The prevalent diseases were those of the digestive and respiratory systems, influenza, malaria, skin diseases, rheumatism, and enteric fever. An epidemic of small-pox, almost entirely confined to the Limassol district, occurred in August, 1919. There has been a steady and well-maintained decrease in the number of cases of malaria treated in Cyprus since anti-malarial measures were instituted in 1913 by Sir Ronald Ross, K.C.B., the yearly total of cases having fallen from 10,000 in 1912 to less than 2000 in 1919, whilst the "spleen rate," perhaps the

best index of the incidence of malaria, has shown a proportionate decline from 17·2 in 1913 to 5·2 in 1919. A slow but steady annual reduction is observed in the number of patients admitted to the leper asylum at Nicosia. During 1919 Cyprus enjoyed complete immunity from plague, cholera, and typhus, although these diseases prevailed in neighbouring countries. The estimated population at the end of 1919 was 311,108, an increase of 4111 over that of 1918. The birth-rate for the year was 29·8 per 1000 of the population (as against 31·3 in 1918), and the death-rate was 18·5 per 1000 (as compared with 26·1 in 1918).

Bermuda.

The population at the end of 1919 was estimated at 21,869, exclusive of the naval and military establishments. The proportion of coloured persons to white is about 2 to 1. In 1911 the population was 18,994, and has been gradually increasing since. The increase for 1919 was, however, the lowest on record, being only 29. This was partly due to the cessation of immigration from the West Indies owing to additional restrictions placed on immigrants and the insistence upon a money deposit on entry. The number of persons leaving the colony, especially among the labouring and domestic servant classes, is causing some anxiety. There has always been a comparatively regular and considerable immigration to the United States and elsewhere, but hitherto it has been counterbalanced by the entry of immigrants from the West Indies. The high wages prevailing in the United States of America are the principal attraction, and the bulk of those who leave the colony do not return. The population is large for the area, and the figures given take no account of the large number of tourists visiting the place, amounting in some years to more than the resident population. The birth-rate in 1919 was 24·87 per 1000 and the death-rate 17·28, both rates being considerably higher among the coloured population than among the whites. The infantile death-rate was 16·6 per 100 living births—6·1 among whites and 20·5 among coloured children. In 1919 rain fell on 183 days, the total fall for the year being 48·84 inches. The highest temperature was 90·2° F. on August 20th, and the lowest 46·8° on Feb. 12th. The colony offers unusually favourable health conditions. There are no extremes of temperature, and it is beyond the range of the usual tropical diseases. Malaria is unknown, but there are occasional outbreaks of a mild type of dengue fever. Mosquitoes are prevalent in summer, but as they are regarded more as a nuisance than as a menace to health it is difficult to arouse interest in measures for their eradication. It would, however, add greatly to the attractions of the islands and to the amenities of life if these pests could be eliminated or substantially reduced, and measures to that end are now under consideration. The reduction of the common house-fly, which is very numerous in summer, is an equally important object of the proposed measures.

Fiji.

In his report on the Blue-book for 1919 Mr. T. E. Fell, Colonial Secretary, states that the estimated population at the end of the year was 163,847 (as against 139,541 at the Census of 1911), comprising 4584 Europeans, 2824 half-castes, 62,640 Indians, 2664 Polynesians, 87,493 Fijians, 2157 Rotumans, 892 Chinese, and 613 others. The early months of the year were marked by the epidemic of influenza, which continued its ravages until March, when it gradually subsided. Medical relief parties from New Zealand and Australia, under Colonel Jennings and Major Alexander respectively, continued their good work until the end. Medical officers generally worked at exceedingly high pressure, and in many districts under stupendous difficulties, arising from the lack of means of conveyance. Their efforts, together with those of voluntary workers organised by European committees for service throughout the group amongst natives and Indians, were the means of saving many lives. The estimated number of deaths from the disease was 8145, the European victims being 1·41 per cent. of population; half-castes, 2·75; Fijians, 5·66; Indians, 4·17; and others, 6·93.

In the Colonial Hospital in 1919 1965 patients were treated, of whom 180 were Europeans. At the branch hospital at Levuka the admissions during the year were 496. Native Fijians generally derive medical treatment at the 11 provincial hospitals controlled and supervised by district medical officers. Some of the latter were still absent on war service, and in those areas the hospitals were left in charge of native medical practitioners. The number of admissions to provincial hospitals was 2816. The lunatic asylum at Suva, under the management of the resident medical officer of the Colonial Hospital, who acts as superintendent, and a board of visitors, receives patients of both sexes of all nationalities. There is separate accommodation for Europeans. The inmates numbered 70 at the close of the year. The leper asylum on the island of Makogai contained at the end of the year 352 inmates under the management of the superintendent, Dr. F. Hall, and six European nursing sisters supplied by the Catholic Mission, and five Fijian nursing sisters, all greatly devoted to their good work. The high degree of efficiency which has marked the institution since its inception has been maintained. During the year 11 lepers were conditionally discharged from the asylum.

The total rainfall recorded at Suva in 1919 was 138·18 in., as against 103·84 in. in 1918 and 162·05 in. in 1917. This rainfall is 25 in. above the average for 25 years and fell on 248 days. The average temperature for the year at Suva was 76·3° F., the mean shade temperatures being 71·3° minimum and 81·3° maximum.

Basutoland.

In his report for 1919-20 Mr. J. P. Murray, Government Secretary, writes: The anticipated recrudescence of typhus fever occurred early in January, 1919, in the same neighbourhood that the disease first appeared in 1918—viz., the Quthing district along the Orange River. There were no cases in the Qacha's Nek district. The epidemic was of a much milder type. There were 243 cases with only 50 deaths, compared with 241 cases and 111 deaths in 1918. The mildness of the epidemic renders it more difficult to deal with, as it is often weeks before outbreaks are reported, generally in some remote mountain village. In spite of vigorous efforts made to stamp out the disease it is feared that it will be found endemic in the Quthing district as it has become in some of the native territories of the Union. It is still the Tembu who are the chief sufferers, due to the dirty habits and surroundings of this clan, as opposed to the Basuto, who are naturally a clean race. Tuberculosis is neither increasing nor decreasing, the number of cases being about the same from year to year. Syphilis is becoming an increasingly serious problem and danger to the nation. 4216 cases were treated, but these must form a small percentage of the total number of cases in the territory. The type of disease is altering slightly. Formerly primary sores were seldom observed; now they are common and present the usual classical symptoms. There was no recrudescence of the severe type of influenza which devastated the country in 1918, but a fair number of cases of the usual mild form of the disease were observed; this type may be regarded as endemic. There were only 87 cases of enteric fever recorded. A dry summer and autumn is always followed by a low incidence of enteric. Where it had been possible to provide preventive inoculation, as on the Government reserve, cases were practically unknown. Dysentery was unusually prevalent, mostly of the bacillary type. There were no cases of small-pox, but chicken-pox was prevalent in some areas. During the 12 months ended March 31st, 1920, there were 62 new cases admitted to the leper settlement, and the total of inmates on April 1st was 349 (168 males and 181 females). There are still a good number of lepers at large.

HOME SERVICE AMBULANCES.

ON the release from war work of the ambulances of the Joint Committee of the British Red Cross Society and the Order of St. John the Home Ambulance Service was established to alleviate suffering by provision of transport for the sick and injured throughout the country. Its aim is a distribution of ambulances on such a scale that wherever illness or accident may occur there shall be a motor ambulance within a convenient distance to convey the patient with a minimum of pain to the point where medical and surgical skill can be most efficiently applied. The Hon. Sir Arthur Stanley is chairman of the Home Service Ambulance Committee, Sir Dawson Williams is the medical member, and Mr. F. C. Davies secretary. A list is now issued, arranged on a county basis, showing where the ambulances are stationed, and to whom application should be made for them. Applications from the London Area should be made to the Secretary of the Home Service Ambulance Committee at 19, Berkeley-street, London, W. 1. (Telegrams: Assistance, Piccy, London. Telephone: Mayfair 345.) The following example will show how the county list is set out:—

BEDFORDSHIRE.

Co. Director: Lt.-Col. F. A. Stevens, C.B.E.
Address: The Shire Hall, Bedford.
Telegrams: The Shire Hall, Bedford.
Telephone: Bedford 143.

District.	*Stationed at—*	*Officer in Charge.*
Luton.	Police Station Garage. Tel. No.: 39.	Chief Constable, Luton.
Morhanger.	Moggerhanger Park, Nr. Sandy. Tel. No.: Sandy, 25.	Dr. Welch, M.O.H. Tel. No.: Bed. 341.
Dunstable.	The Hospital, Dunstable. Tel. No.: 72.	The Matron (same address).
Leighton Buzzard.	Messrs. Parrot and Janes, North-street. Tel. No.: 122.	Chairman of the U.D.C., Council Offices, Leighton Buzzard.
Biggleswade.	Isolation Hospital, Polton-road. Tel. No.: 25.	Henry Chaundler, Esq., Biggleswade Joint Hospital Board, Biggleswade. Tel. No.: 6.

DIET KITCHENS FOR FRENCH HOSPITALS.

THE close association of the British and French Red Cross volunteers during the war has had many happy results for both countries. Amongst these must be counted the introduction of the diet kitchen into French hospitals. This essential institution was added to the equipment of French military hospitals during the war through the initiative of Miss Madge Oliver. Dr. Marcel l'Abbé, writing in *La Presse Médicale* for Dec. 22nd, 1920, describes how he was impressed with their value during the war to such an extent that he has now succeeded in arranging the transfer of their organisation to the Hôpital de la Charité at Paris. A series of diets are tabulated, so that the prescribing physician has merely to indicate a number on the diet sheet, as has long been done in many English hospitals.

GERMAN MEDICAL TERMINOLOGY.

STUDENTS of contemporary medical literature, who are otherwise fairly well versed in modern languages, are apt to find names or phrases or turns of expression in foreign journals for which the ordinary dictionary affords them no help. In French the noble series of reference books issued by the Librairie Larousse is the standby in such emergencies. In German medicine and the allied sciences nothing can take the place of Dr. Walter Guttmann's "Medizinische Terminologie," a new edition of which has just appeared (Urban and Schwarzenberg. 1920. Pp. 1311. M.90). The book appeared first in 1902, the author setting himself the task of providing short but clear definitions, and avoiding "every unnecessary ballast," but at the same time inserting any doubtful or interesting etymology, and the names of laws, symptoms, or phenomena associated with their discoverers. In later editions short biographical notices were added and the range of subject was increased, pharmacology, neurology, and medical zoology receiving special attention. Some 450 small illustrations of a rather trivial nature serve to break up the text; it is curious how the encyclopædic dictionary with really well-chosen pictures is still to be sought in any language. Although neither paper nor binding of the present edition of Guttmann is of good quality, all the essentials of convenient arrangement and easy reference are present.

SWISS SPAS.

WE have received an elaborate brochure from the pens of 12 Swiss M.D.'s and one Ph.D. describing the attractions offered by Switzerland in the way of natural medicinal waters. The following nine stations are included: (1) Eaux thermales de Baden; (2) Bex-les-Bains; (3) Bains du Gurnigel; (4) Bains de Passugg; (5) Eaux thermales de Ragaz-Pfæfers; (6) Bains salins de Rheinfelden; (7) St-Moritz-les-Bains; (8) Tarasp-Schuls-Vulpera-les-Bains; (9) Bains de Val Sinestra. Some of these are of very ancient reputation. Tacitus mentions the waters of Baden, and the bath at Pfæfers was founded in 1038. Dr. H. Keller contributes a careful analysis of the saline and other constituents of the waters with admirably clear percentage charts, from which emerges the following working classification:—

1. Eaux thermales simples: *Ragaz-Pfæfers.*
2. Eaux alcalines: (*a*) Alcalines terreuses: *Passugg:* source Hélène. (*b*) Alcalines chlorurées sodiques: *Passugg:* sources Ulricus et Fortunatus. (*c*) Alcalines-chlorurées sulfatées sodiques: *Tarasp-Schuls-Vulpera:* sources Lucius, Ursus, Emerita et "Neue Badquelle."
3. Eaux sulfureuses: (*a*) Eaux sulfureuses thermales: *Baden.* (*b*) Eaux sulfureuses froides: *Gurnigel.*
4. Eaux chlorurées sodiques ou salées: *Rheinfelden, Bex.*
5. Eaux ferrugineuses: *Saint-Moritz:* sources Surpunt, Mauritius et Paracelsus. *Tarasp-Schuls-Vulpera:* sources Boniface, Carola, Val Fuschna, Sotsass, Val Plavna, Val Püzza et Wy. *Passugg:* source Belvedra.
6. Eaux iodurées: *Passugg:* source Fortunatus. *Tarasp-Schuls-Vulpera:* source Lucius.
7. Eaux lithinées: *Tarasp-Schuls-Vulpera:* source Lucius. *Passugg:* source Fortunatus.
8. Eaux arsenicales et ferrugineuses: *Val Sinestra:* sources Ulrich, Jean, Conradin et Thomas.

There follows a very practical list of the foreign (i.e., non-Swiss) spas which the Swiss resorts may adequately replace.

1. *Ragaz-Pfæfers* may replace Badenweiler, Schlangenbad, Warmbad près Wolkenstein, Warmbrunn, Wildbad (Germany); Gastein (Austria); Luxeuil, Plombières (France); Cormano (Italy); Buxton (England).
2. *Passugg: source Hélène:* Apollinarisbrunnen, Gerolstein, Neuenahr, Sulzmatt, Obersalzbrunn (Germany); Bilin, Giesshübel (Austria); Vals and Vichy (France). *Sources Ulricus et Fortunatus:* Wildungen, source Hélène, Fachingen, Ems, Roisdorf, Nieder-Selters (Germany); Gleichenberg (Austria); Royat and Vichy (France).
3. *Tarasp-Schuls-Vulpera: sources Lucius, Ursus, Emerita et Neue Badquelle:* Betrich, Elster, Kissingen and Grenzach (Germany); Franzensbad, Marienbad, and Karlsbad (Czecko-Slovakia); Brides-les-Bains (France); Cheltenham and Leamington (England).
4. *Baden:* Aix-la-Chapelle (Germany); Herkulesbad, Budapest-Kaiserbad, Pistyan (Hungary); Aix-les-Bains, Amélie-les-Bains, Bagnères-de-Luchon, Bagnols-Lozère, Eaux-Bonnes, Saint-Gervais (France); Acqui, Vinadio, Viterbo (Italy); Panticosa (Spain); Hélouan (Egypt); Brousse (Asia Minor).
5. *Gurnigel:* Nenndorf (Germany); Allevard, Enghien, Pierrefonds (France); Harrogate (England); Tabiano (Italy); Santa Agueda (Spain).
6. *Rheinfelden et Bex:* Dürrheim, Kreuznach, Nauheim, Reichenhall, Kösen (Germany); Ischl (Austria); Biarritz and Salies-de-Béarn (France); Salsomaggiore and Monte-Catini (Italy); Droitwich, Nantwich, Woodhall Spa (England).
7. *St. Moritz-les-Bains:* Antogast, Petersthal, Rippoldsau, Pyrmont, Schwalbach, Steben (Germany); Franzensbad and Marienbad (Czecko-Slovakia); Forges and Lamalou (France); Recoaro (Italy); Tunbridge Wells (England); Spa (Belgium).
8. *Val Sinestra:* Cudowa, source Guber (Silesia), Levico Roncegno and Recoara (Italy); Vichy, La Bourboule, Mont Dore, Royat and Vic-sur-Cère (France).

Of course, the indications are reversible, and we may suggest on our part that *Buxton may replace Ragaz* and so on. We cannot, however, with justice make quite the same claim as Switzerland does to the position of international health resort, for Dr. Zollinger writes:—

> Pendant toutes les tempêtes politiques qui ont secoué le monde, la Suisse a donné la preuve que des peuples de langues et de caractères différents peuvent travailler en harmonie à la formation d'un état; elle a prouvé victorieusement qu'elle peut devenir un digne membre de la grande communauté des peuples et qu'elle peut être un élément de forces constructives dans l'élaboration du statut de l'humanité de demain.

Nor can we provide to the same extent certain other curative factors set out as: Le soleil et la lumière, l'air pur des montagnes, la chaleur et le froid, facteurs qui constituent la climatothérapie et l'héliothérapie.

A Radiant Heat Conserver.—Mr. C. Wray's device, described in our last issue, may be obtained through the Canadian United Manufacturers Agency, Ltd., of 12, Charterhouse Buildings, Goswell-road, London, E.C. 1.

S.M.O.—The principal part of the Porteus outfit for mental deficiency is the so-called maze test. Apparently this can only be obtained from the Vineland Training School, New Jersey, U.S.A.

Corrigendum.—In Major H. C. Brown's paper on "The Use of Citrated Media," published in our last issue, "lead acetate" in the eleventh line from the bottom, column 1, p. 23, should read "lead *citrate*."

Communications, Letters, &c., to the Editor have been received from—

A.—Major H. Acton, I.M.S.; Dr. E. E. Atkin, Lond.
B.—Mr. H. Barwell, Lond.; Dr. G. Blacker, Lond.; Birmingham Medico-Psychological Society; Dr. M. Bruce, Lond.; Dr. J. Bannerman, Stanhope; Board of Education, Lond.; Brooklyn Cardiological Society.
C.—Dr. F. G. Chandler, Lond.; Sir F. Colyer, Lond.; Mr. E. M. Corner, Lond.; Dr. E. P. Cumberbatch, Lond.; Chadwick Trust, Lond.; Dr. W. Cramer, Lond.; Chelsea Hospital for Women, Lond.; Dr. W. F. A. Clowes, Colchester; Dr. S. Colyer, Lond.; Messrs. Constantidini and Co., Lond.; Dr. C. Coombs, Bristol.
D.—Deutsche Gesellschaft für Schädlingsbekämpfung, Frankfurt-a-Main; Dr. H. B. Day, Lond.; Dr. G. Dinolt, Vienna; Col. L. S. Dudgeon, A.M.S.
F.—Dr. F. Fox, Lond.; Sir A. D. Fripp, Lond.; Lt.-Col. F. E. Fremantle, M.P.
G.—Dr. W. H. Gregory, Beverley; Messrs. J. J. Griffin and Co., Lond.; Great Northern Central Hospital, Lond.; Messrs. C. Griffin and Co., Lond.; Dr. G. Graham, Lond.; General Medical Council, Lond., Registrar of; Dr. S. R. Gloyne, Lond.
H.—Prof. L. Hill, Lond.; Col. C. B. Heald, Lond.; Harrogate Corporation; Dr. C. W. Hutt, Lond.; Dr. A. J. Hall, Sheffield; Prof. F. G. Hopkins, Cambridge; Sir W. H. Horrocks, Lond.; Mr. J. T. Henderson, Pietermaritzburg; Major W. E. Home, R.A.M.C.; Dr. R. C. Holt, Didsbury; Hospital for Sick Children, Lond.
I.—Dr. R. Ishiyama, Seattle.
L.—Maj.-Gen. Sir W. B. Leishman, Lond.; *Literary Year Book*, Liverpool, Editor of.
M.—Medico-Legal Society, Lond.; Mr. J. B. Macalpine, Manchester; Dr. E. W. G. Masterman, Lond.; Ministry of Health, Lond.; Middlesex Hospital Medical School, Lond., Sec. of; Dr. W. Mitchell, Bradford; Mr. G. Mayall, Bolton; Ministry of Agriculture and Fisheries, Lond.; Dr. G. D. Madill, Dublin.
N.—National Council for Combating Venereal Diseases, Lond.
O.—Dr. J. S. Owens, Lond.; Dr. W. Overend, St. Leonards-on-Sea.
P.—Panel Doctor.
R.—Dr. D. G. Rice-Oxley, Lond.; Royal Sanitary Institute, Lond.; Mr. H. Rundle, Southsea; Royal Society of Arts, Lond.
S.—Prof. W. Stirling, Manchester; Society for the Study of Inebriety, Lond.; Dr. M. Sarkies, Lond.; Sir A. Schuster, Lond.
T.—Mr. E. Thorp, Sunderland; Dr. G. L. Thornton, Exmouth.
U.—University of London.
V.—*Vaccination Enquirer*, Lond.
W.—Mr. E. Whisk, Lond.; Mr. J. E. W. Wallin, St. Louis; Mr. J. Woodhead, Hamilton, Ontario; Dr. M. S. Wade, Kamloops; Dr. P. Wilde, Bath; Dr. F. R. Walters, Farnham; Dr. F. J. Waldo, Lond.; Dr. J. W. T. Walker, Lond.; West London Post-Graduate College; Dr. O. K. Williamson, Lond.; Mr. A. J. Walton, Lond.
Y.—Dr. M. L. Young, Lond.
Z.—Dr. T. Zangger, Zurich.

Communications relating to the editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, London, W.C. 2.